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The impact of government financial support on the performance of new firms:

The role of competitive advantage as an intermediate outcome

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Abstract

This research examines the influence of government financial support on new firms' performance. Extant empirical research on the topic has found mixed results, which warrants an exploration of the theoretical basis for the impact of support policies on new firms' performance. Grounding the theoretical model in the resource-based view and institutional theories, this study contends that performance outcomes – e.g., revenues or profits - should not be the first outcomes of public policies to be examined. Instead, competitive advantage formation is suggested as a link between support policies and new firms' performance. Using new firms from the U.S., we examine the impact of government financial support measures - government loans, guarantees and government equity - on firms' overall competitive advantage and more specific types of competitive advantage based on innovation, licensing-in, marketing, and human capital. Controlling for family funding, bank financing, equity of business angels and venture capitalists, industry, size, as well as entrepreneur's characteristics, the results reveal that government guarantees and government equity have a direct effect on new firms' competitive advantage and only an indirect impact on performance. Our results suggest to policy makers to focus on helping new firms build the necessary capabilities to compete successfully in the marketplace.

Keywords: public policy support, access to finance, loans, guarantees, government equity, competitive advantage, performance

JEL: C23, C24, G28, H81, L26, M13

1. Introduction

Over the last two decades the phenomenon of entrepreneurship has attracted major attention both in the scientific and policy-making arenas. Entrepreneurship has been broadly recognized as a means of job creation, innovation, and economic growth (e.g. Audretsch and Keilbach 2004; Wong, Ho, and Autio 2005). This has given rise to numerous governmental/regional policies aimed at enhancing entrepreneurship and helping the survival and growth of new firms (Collett, Pandit, and Saarikko 2014; Gilbert, Audretsch, and McDougall 2004; Hart and Scott 1994; Huggins and Williams 2011; Kitching 2006; Meccheri and Pelloni 2006; Murdock 2012; Niska and Vesala 2013; North and Smallbone 2006; Von Bargen, Freedman, and Pages 2003). However, some researchers question the relevance of placing an emphasis on new firm creation on behalf of governments as a means for regional development. Thus, Shane (2009) calls a "dangerous myth" the policy makers' belief that start-ups will generate innovation and create jobs. Van Stel and Storey (2004) note in the same vein that it is not clear whether increase in new firms' birth rates through government policy support is a cost-effective way of enhancing employment in medium term. Fritsch and Mueller (2004) suggest that public policy should avoid interventions that disturb the survival-of-the-fittest scenario. Greene, Mole, and Storey (2004, 1223) point to the "difficulties, ineffectiveness and questionable ethics of stimulating enterprise amongst the disadvantaged and/or in less entrepreneurial areas". The debate over this issue has produced a body of research devoted to the relationship between government programs and policies promoting entrepreneurship, and different measures of economic growth (e.g., Baumgartner, Schulz, and Seidl 2013; Hart and Scott 1994; Morris and Stevens 2010; Rotger, Gørtz, and Storey 2012). In spite of the very high practical importance of the issue, it seems that there is no consensus on whether the policies designed to contribute to entrepreneurship are

effective and what governments can do to promote an environment conductive for new firm growth and development (Spencer and Gomez 2004).

Research on the topic has generally taken either a macro perspective (e.g., Hart and Scott 1994; Huggins and Williams 2011; Murdock 2012), looking at the aggregate-country level (e.g., how public policies affect the number of new firms / new jobs created in a country or across countries), or a firm-level of analysis (e.g., Cowling 2010; Cowling and Mitchell 2003; Lenihan and Hart 2006; Mole et al. 2009, 2011; Morris and Stevens 2010; Oh et al. 2009; Rotger, Gørtz, and Storey 2012), usually comparing firms that received funding or other form of assistance from a particular government support program with firms that did not, examining whether there are differences in the performance outcomes of the two groups, such as sales growth, profitability, employment growth, and productivity. The results from empirical research on the firm level of analysis have been mixed. For example, some studies have found that government support improves survival rates (e.g., Maggioni, Sorrentino, and Williams 1999; Oh et al. 2009), but not productivity. According to Morris and Stevens (2010), government assistance has a positive effect on sales; on the contrary, Lerner (1999) and Honjo and Harada (2006) found no strong support for this relationship. The mixed results from the empirical literature warrant an exploration of the theoretical basis for the effect of public support programs on new firms' performance.

In the current paper, we take a firm-level perspective and focus on individual firms and their development during the first 7 years of their life. From a policy perspective, we focus on government support policies related to access to finance to support entrepreneurship. Many authors have confirmed that access to finance is a critical factor for new firms (Hartarska and

Gonzalez-Vega 2006; Patzelt and Shepherd 2009; Tan and Peng 2003), and therefore many public programs have focused on this support element.

The context of this study is the United States. The global financial crisis has had an impact on the recognition of the importance of young firms to the contribution of jobs in the country. Between 2008 and 2011, net employment in the OECD area fell by 2% (9 million people), two-thirds of which in the United States (OECD 2013). Thus, spurring job creation via enhancing small business access to credit is a key priority for the US government with the 2013 budget supporting $16 billion in Small Business Administration (SBA) loan guarantees, with the objective of helping small businesses operate and expand. The US government also supports $4 billion in Small Business Investment Company (SBIC) debentures to support new businesses; and $18 million in direct loans, for intermediaries to provide small loans to emerging entrepreneurs. In international comparisons among OECD countries, the US consistently ranks among the top in direct government support for business innovation as a percentage of GDP (OECD 2012), which further speaks of the importance of new and small business growth in the US support policies. Given the key role of entrepreneurship in the American economy and the enhanced recognition for the importance of support for new and small businesses, the US provides a fertile ground to study the impact of government financial support on new ventures' performance.

The current paper contributes to extant research in the following ways. First, in an attempt to disentangle the conflicting results in the empirical literature looking at the individual firm level of analysis, we contend that performance measures, such as revenues and profits of new firms, should not be the first outcomes to be examined. Instead, we suggest, government support measures work their way via the development of unique resources and capabilities that enhance

companies' competitive advantage. It is the development of competitive advantage that bridges government support programs to superior financial performance. Such an indirect effect has been suggested by others (e.g., Lambrecht and Pirnay 2005) and is grounded in the resource-based view (RBV) of the firm (Amit and Shoemaker 1993; Barney 1991). According to the RBV, although resources (such as financial resources) are important, companies need to develop unique, inimitable assets and capabilities that will lay the basis for sustainable competitive advantage. Research has suggested that acquiring, coordinating and integrating resources from external organizations can enhance organizational capabilities (Teece et al., 1997), and these in turn will lead to improved financial performance. Following this logic, Lu et al. (2010) examine the role of capabilities as a mediator between government programs and internationalization performance. Lambrecht and Pirnay (2005) also support the rationale for indirect effect, as in their study the reasons SMEs used external (government-sponsored) advise were related to organizational development and qualitative impact sought, such as management knowledge and capacity to discover needs and solve problems. Quantitative reasons, such as improved profitability or liquidity, were rarely mentioned by the entrepreneurs in their study, and the authors found no significant impact of external consultancies on financial indicators (Lambrecht and Pirnay 2005). In a similar vein, Bennett and Robson (2003) use the RBV to suggest that external government support (in the form of advice services) builds SMEs' competitive capacity. Thus, in the current research we build a theoretical model, based on the tenets of the resource-based view (Amit and Shoemaker 1993; Barney 1991) and complemented with the institutional theory (North 2005) and argue theoretically that greater sales and profits are the result of firm-specific resources and capabilities that bring competitive advantage. From the RBV we take the rationale for an indirect impact of "hard" resources, such as access to finance through

government support, on the performance outcomes of new firms. RBV stipulates that such "hard" resources provide initial input to new ventures, but it is how those resources are utilized, combined and developed within the firm in the process of building unique resources and capabilities, that bring competitive advantage and, consequently, improved performance. From institutional theory we take the arguments of how government financial support can influence the initial resource flows for new firms either through direct financial resources (e.g., loans) or through legitimacy-enhancing mechanisms (e.g., loan guarantees) that facilitate access to recourses such as bank financing. Thus, we offer a theoretically sound model of the importance of competitive advantage as an intermediate outcome and a measure of the effectiveness of government financial support policies.

Second, extant literature at the firm-level of analysis usually examines the impact of a particular program / policy on firms that participated (vs. firms that did not) and looks at comparative performance. For instance, Mole et al. (2009) examined whether participation in the Business Link program in the UK has an effect on sales and employee growth; Morris and Stevens (2010) assessed the Growth Services Range support program in New Zealand; Oh et al. (2009) evaluated the credit guarantees scheme in Korea; while Rotger, Gørtz, and Storey (2012) examined participation in the North Jutland Entrepreneurial Network program in Denmark. Differential performance for firms, however, is not likely to result from participation in one program only; it is rather the effect of multiple variables affecting the new firm. Firms might access different government support measures throughout the first years of their life (such as loans, guarantees and government equity) that provide them with financial resources. As RBV suggests, the creation of firm-specific resources and capabilities that have the potential to bring competitive advantage is a process in which new firms combine diverse resources available to

them (Barney 1991; Newbert 2007; Teece et al. 1997). The success of new firms can be helped

by specific government financial support programs, but there are other sources of financing that

new firms use, such as venture capitalists, family equity, etc., and those need to be accounted for.

It is arguably rarely the case that entrepreneurs would rely mainly on government support for

initial funding. Thus, in this paper we control for several other resource inputs (e.g., family

funding, bank financing, equity of business angels, equity of venture capitalists), entrepreneur's

characteristics (e.g., education, industry experience, gender), as well as industry characteristics

and firm size in the process of building capabilities and creating competitive advantage.

Our research contributes to contemporary debates on RBV theory. In particular our study

makes at least two theoretical contributions to the resource-based theory (Barney et al. 2011).

First, our research contributes to current debate on bridging the strategic factor market theory

(Barney 1986) and asset accumulation logic (Dierickx and Cool 1989), more specifically we

contribute to the interplay between acquiring resources to build capabilities suggested by

Maritan and Peteraf (2011). This stream of research has been ongoing since the original debate

between Barney and Dierickx and Cool. According to Maritan and Peteraf (2011) strategic factor

market activity (i.e. acquisition of strategic resource inputs that companies need to buy from the

market) and internal capacity building have been treated in the literature as separate or

independent mechanisms for sustainable competitive advantage. By linking external strategic

resources and internal capability building as suggested by Maritan and Peteraf (2011), our

research taps this opportunity and studies the role of acquiring financial resources (e.g.

government loans, equity) in the process of building different types of competitive advantages

(e.g. innovation, licensing-in, marketing, and human capital). In addition to answering whether

acquiring resources impact capacity building, we disentangle how specific government financial

support may help build innovation, licensing-in, marketing, and human capital advantages. Second, our study contributes to the debate on 'making intangibles tangible' by conceptualizing and measuring intangibles in a theory driven way. Molloy et al. (2011) made a call for construct clarity and embedding the concept of intangibles within resource-based theory. Our study provides a conceptualization of innovation, licensing-in, marketing, and human capital competitive advantages and ingrains those constructs using RBV. To the best of our knowledge, these four competitive advantages have not been studied together in the current entrepreneurship literature.

Our research also contributes to central debates in institutional theory. Particularly, our study adds to the debate on the impact of isomorphic conformity and seeking legitimacy on performance (Barreto and Baden-Fuller 2006). In a meta-analysis, Heugens and Lander (2009) studied the direct impact of isomorphism on financial performance and found a positive effect. On the contrary, Barreto and Baden-Fuller (2006) studied the direct impact of legitimacy on financial performance and found a negative effect. Our study contributes to this debate by providing a more fine grained notion on how legitimacy impacts performance and goes beyond studying direct effects. We research the impact of government guarantees –as a legitimacy enhancing mechanism- on new ventures performance. Through these guarantees, new ventures get access to more (financial) resources under more favorable conditions presumably from the banking industry (Cowling 2010). However it is not necessarily having access to more resources that will directly impact performance. We demonstrate that legitimacy enhancing mechanisms – such as government guarantees- will have a positive impact on new ventures financial performance through building capabilities and competitive advantages.

Although we use US data, our study can be relevant to non-US countries that have similar entrepreneurship policy priorities to the US and have implemented support programs in line with those priorities (for instance, countries that have similar emphasis on support programs for new businesses such as Japan, France, Sweden, among others as indicated in OECD reports (OECD 2012)). The framework presented in our research may provide a more detailed evaluation of the role of support policies. However, for countries that also put government support as high priority but present very different market environment (e.g. transition economies), the results of our study might not be directly applicable and should be taken in light of the different market and public policy environment.

In what follows, we introduce the RBV of the firm and build the theoretical model, linking support resources to competitive advantage of new firms. We complement the RBV with the institutional theory to explain how government support can help new firms in the processes of developing competitive advantage. We test the model empirically using a sample of new firms in the U.S, and employing a dataset of more than 2700 observations from the Kauffman Firm Survey (developed and collected by the Ewin Marion Kauffman Foundation). We apply panel data probit and logistic regressions to form the constructs of competitive advantage, and panel data tobit and ordered probit regressions to estimate the effect of government financial support on competitive advantages and performance of new firms. We also perform several robustness checks of the findings. Finally, we discuss the results and present conclusions and implications for research and policy makers.

2. Theoretical framework and hypotheses

To provide the setting for understanding how new firms can create competitive advantage and what the role of government policy is in this process, we draw on the institutional theory and the RBV of the firm. Combining these two theories allows us to look at how firms operate and build resources and capabilities within the constraints (and enablers) of the institutional environment in which they operate, as government policies are key elements in the external conditions in which entrepreneurship develops (Smallbone et al. 2010). In particular, the institutional theory provides an understanding of the importance of regulative structures, such as laws and programs that affect new firms by means of e.g., providing access to critical resources through support programs, and the importance of legitimacy as a mechanism to gain support from other stakeholders. Entrepreneurship researchers have discussed the role of both formal and informal institutions in affecting the resources available to new and small firms (e.g., Welter 2011). We focus on the role of formal institutions through support policies and isomorphism and the way in which they can influence initial "hard" resources for new firms. The RBV, on the other hand, sheds light on the role of new firms' acquisition of resources available in the environment and the role of capability building of those new firms to utilize and combine resources available to them in a way that brings sustainable competitive advantage.

2.1. Resource-based view: building new firms' competitive advantages

The RBV of the firm posits that (1) firms can be seen as bundles of resources, and (2) the heterogeneity among firm resources and (3) the way those resources are deployed are the fundamental reasons for differential performance (Barney 1991; Penrose 1959; Wernerfelt 1984). Sustainable competitive advantage and thus increased performance, stem from resources which are valuable, rare, imperfectly imitable and non-substitutable (Barney 1991; Collis 1991;

Dierickx and Cool 1989). Resources can be both tangible, such as materials, capital, premises, etc., and intangible, such as reputation, customer loyalty and intellectual property rights. According to the RBV of the firm, although firm's physical resources are important, the primary emphasis is placed on the intangible skills and resources of the firm as they are considered to be non-tradable, more difficult to imitate and take time to build internally (Amit and Shoemaker 1993). It is therefore, the ability of a firm to develop distinct resources and capabilities that enhances its capacity to adapt to the changing competitive environment and to achieve competitive advantage that leads to superior performance.

RBV has been used in other studies in entrepreneurship that investigate the impact of government support programs. For instance, Chrisman and McMullan (2000) base their study on counseling for would-be-entrepreneurs on the RBV, and show how increase in knowledge (intangible firm-specific resource) for the entrepreneur helps firms to achieve competitive advantage and affects positively survival and growth rates. In a similar vein, Bennett and Robson (2003) argue for the competitive benefits obtained from knowledge which can be derived from external sources of advice such as government support programs. Similarly, Mole et al. (2009) use RBV to explain the effect of business advice for small firms within the framework of the Business Link program. While those studies have focused on business advice or counseling and subsequent knowledge increase, our study utilizes the RBV to explain how resources related to increased access to finance can help new firms in their quest for competitive advantage. We, thus, expand the application of RBV to a different realm by focusing on the mechanisms through which support for access to finance can act as a resource that firms can acquire and then use and combine with other resources and skills in order to achieve competitive advantage. RBV argues that resources are not of much value by themselves; it is rather how firms process those resources

that matter most (Newbert 2007). Other entrepreneurship researchers using RBV (Grande et al. 2011) have probed that strong financial position is an important resource that has an effect on short and long-term performance for small businesses. We bring this discussion one step further by examining how external financial resources through government support can boost competitive advantage formation for new firms via the process of using "raw" resources and converting them into firm-specific, inimitable assets and capabilities.

Since the sources of competitive advantage can be numerous, we first explain some of the most commonly considered distinctive resources within the RBV, and then move to a discussion of the role of government support. Firms can build one or more valuable, rare, intangible resources. Some of the most widely acknowledged resources important for achieving competitive advantage are based on (1) innovation, such as internally developed patents and R&D, as well as licensing-in that allows companies to enter new markets and use industry developments; (2) marketing-related intangible assets (e.g., strong brands that deliver superior value and build reputation among customers); and (3) internal organizational development processes that increase employees knowledge and competences (e.g., training of human capital).

2.1.1. Innovation and licensing-in-based competitive advantage

Innovation is a major way of generating distinctive resources and competitive advantage (Rosenbusch, Brinckmann, and Bausch 2011). Indeed, government support for new firms has as one of the primary objectives the introduction of new innovative products to markets, as entrepreneurship has been acknowledged as a source of innovation. The ability of entrepreneurs to bring innovations to market is expected to contribute to subsequent performance outcomes, such as growth of sales and jobs creation, increases in productivity and profitability, as well as

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ultimately, increase of economic and social well-being (Fritsch 2008). In particular, as Michael and Pearce (2009) argue, encouragement for innovation is a major justification for government support for entrepreneurship, since innovation raises competition, lowers prices, and creates jobs (Lerner 2010; Rotger et al. 2012), and importantly through innovation entrepreneurship creates wealth both for individuals and nations.

For organizations involved in new technology research and development, competitive advantage derives from successful protection and commercialization of the technology (Webster and Sugden 2003). Thus, copyrights and patents are of paramount importance for companies. Patents and trade secrets have become a key element of competition in high technology industries (Grindley and Teece 1997). In addition, increased competition and rapid technological developments in many industries have led to an environment in which firms compete not only with their own new technology but rely also on patents developed by others in their industry, or even in related industries. For example, in electronics and semiconductors, innovation and technology build on one another's patents as the range of technology is too big for one company alone. More than a decade ago, Grindley and Teece (1997) observed that because of overlapping developments and the potential of mutually blocking patents, many companies are employing cross-licensing of patents, essentially buying the "freedom to operate." This has become necessary because for the production of a particular product, a company might need to use technology and patents developed in several industries such as computers, software, communications, etc. Through licensing companies buy the right to use the technology or intellectual property of others in their own manufacturing processes or for another defined purpose (Webster and Sugden 2003). Recently, researchers have noted an even greater need for licensing-in. The competition in high technology markets such as bioengineering, computers and

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electronics is ever increasing (Di Benedetto, Calantone, and Zhang 2003). Licensing-in technologies that upgrade firm's innovative capability have become crucial. According to Anand and Khanna (2000), licensing-in accounts for 20-33% of strategic alliances in high tech sectors. Licensing-in helps firms upgrade their innovation capabilities and build on developments of others in their industry, and allows them to compete with licensors and enter new markets (Kim 2005). Therefore, in this study we account for both company's own innovation capabilities based on R&D and patents, and licensing-in based capabilities that help firms compete and reach new markets, while complementing their internal innovation.

Such a conceptualization is in line with recent developments in RBV and entrepreneurship literature. Researchers have questioned the one-sided thinking about resources and capabilities claiming that the locus of corporate competences, and thus knowledge and capabilities, has moved beyond the corporate boundaries (e.g., Prahalad and Ramaswamy 2000; Zander and Zander 2005). In the entrepreneurship literature, Fitjar, Gjelsvik, and Rodríguez-Pose (2013) state that the literature on innovation tends to overlook the extent to which firms are dependent on knowledge and resources developed outside of the firm itself. The capability of firms to interact with other economic agents and build on other's knowledge when pursuing new ideas and innovating can be considered a valuable resource within the RBV, as this process can affect the ability of firms to extract, combine and recombine resources to achieve competitive advantage, in a similar way as network resources do (Gulati 1999). Firms can therefore, build competitive advantage not only through internal innovation processes, but also taking advantage of other's knowledge via licensing-in.

2.1.2. *Marketing-based competitive advantage*

In the application of RBV to marketing, literature suggests two relevant marketing resources for the creation and sustaining of competitive advantages: relational and intellectual assets (Srivastava, Fahey, and Christensen 2001). Relational assets include "relationships with and perceptions held by external stakeholders" such as customers, channels, among others; while intellectual assets are the type of knowledge a firm possesses about its environment such as know-how to interact with customers to obtain higher quality market data, new product introduction know-how, etc. (Srivastava et al. 2001, p. 779-782). Our study focuses on perception-based relational assets and intellectual assets related with the process of designing new products or services. Company's reputation among consumers is an important perception-based relational asset because it contributes to consumer loyalty and sustained repeat purchases (Srivastava, Shervani, and Fahey 1998). Building and managing the company's brand is key to fostering reputation (Keller 1993). In the marketing literature, brand assets are considered an important marketing contribution to intangible firm resources (Srivastava, Shervani, and Fahey 1998). Brand equity, as an "off-balance sheet" asset, is considered one of the major drivers of the market value of an organization (e.g., Keller and Lehmann 2006; Vargo and Lusch 2004) and an important intangible asset that brings competitive advantage (Amit and Schoemaker 1993; Grant 1991). Among the important advantages stemming from creating strong brands are that they enable rapid customer acceptance of brand extensions, contribute to pricing flexibility (allowing the firm to charge price premium), and help obtain support from supply chain partners (Hsieh 2004; O'Cass and Ngo 2007), thus enhancing the reputation of the organization. Exploratory research conducted in order to comprehend the extent to which brands are considered important for new and small businesses suggests that small firms are usually limited in their brand building efforts by the available resources; nevertheless they are aware of the

benefits of creating strong brands and many are pursuing brand building as a means of differentiation and competitive advantage (Krake 2005; Runyan, Huddleston, and Swinney 2007). In addition, Berthon, Ewing, and Napoli (2008) report that high - performing SMEs implement brand management practices to a greater extent than their less successful counterparts. Thus, firms need to offer new products and services that meet consumer needs and support them with strong brand associations that differentiate them on the marketplace. The entrepreneurship literature has also found support for the role of differentiation of the offering as a key marketing practice for SMEs (Polo-Peña, Frías-Jamilena, and Rodríguez-Molina 2012).

The other component of marketing-based competitive advantage that we consider is the process of designing new products and services. The design of new products/services can be a component of either innovation or marketing -based competitive advantages, depending on the perspective of study (Tzeng 2009). If the perspective undertaken is of a technology-push, then innovation and thus design is assumed to start in the R&D department and move onwards in the value chain. However, if the perspective undertaken in of a market-pull, then innovation and thus design is assumed to start in the market, understanding better customer latent needs and then develop a new product or service based on this relevant knowledge. In our study, we take the market-pull perspective of design and therefore consider it as a key process of marketing and a key factor for sustaining and creating customer value. Both RBV and marketing recognize that customer value originates and exists in the external marketplace (Srivastava et al. 2001). Marketing's role centers on seeing the current and potential world in a different manner (Drucker 1983) so that the needs of customers can be identified, elaborated and translated into product specifications (Hauser and Clausing 1988; Von Hippel et al. 1999), sometimes even before the customers themselves are conscious of these needs (Day 1990). The ability of the new firm to

design new product configurations that generate new offerings and therefore customer value would provide the new firm with rareness; and the more this firm invests time, energy and talent into the design process of new products, the greater is its reservoir of tacit knowledge regarding how to use market intelligence in guiding the design of new products, therefore making it harder for competitors to imitate (Srivastava et al. 2001). Taken all these together, in this study we account for marketing-related competitive advantage based on company's designs and brand-building efforts.

2.1.3. Human capital-based competitive advantage

The resource-based view postulates that superior human capital can create competitive advantage (Hatch and Dyer 2004; Lado and Wilson 1994). The human capital of companies is based on the knowledge and skills of their employees that they acquire through investments in schooling, on-the-job training, and other types of experience (Becker 1964; Unger et al. 2011). Extant literature on human capital in entrepreneurship has placed superior attention on the role of the entrepreneur's general and specific education and experience (Cetindamar et al. 2012; Rauch and Rijsdijk 2013; Unger et al. 2011; Zhao, Frese, and Giardini 2010), leaving the role of other human capital (e.g., employees) at the firm level largely unexplored. Rauch, Frese, and Utsch (2005) investigate the role of human resources development and utilization at the firm level. Our study builds on Rauch et al. (2005) work and relates two relevant concepts to human capital-based competitive advantage: training of employees and organizational development. Training and development of employees is important because the new firm might not find specific and unique skills in the labor market (Lepak and Snell 1999), and consequently these skills need to be developed internally (Rauch et al. 2005). Training is considered an important element because

it speeds the rate at which human resources learn their duties, thereby improving their productivity. As Danvila del Valle and Sastre Castillo (2009) explain, if employees see that the organization is offering them training, and is demonstrating trust and long-term commitment, they will reciprocate by making a greater effort and being more efficient in the implementation of their duties. This is considered to be a barrier to mobility and a process that can improve the performance of the organization (Lee and Miller 1999; Úbeda García 2005). Similarly, organizational development helps to shape employees' behavior and attitudes in such a way to make them consistent with the firm goals (Rauch et al. 2005). Organizational development has been defined as "a set of (…) strategies and techniques aimed at the planned change of organizational work settings, with the intention of generating (…) cognition change in individual organizational members, leading to behavioural change and thus creating a better fit between the organization's capabilities and its current environmental demands, or promoting changes that help the organization to better fit predicted future environments" (Porras and Silvers 1991, p. 54). Organizations, therefore, need to have in place practices that allow employees and organizational members in general to bear the fruit of their potential advantages to create a good fit between the new firm and its environment (Barney and Wright 1998). Thus, new firms need to invest in internal organizational development and employee firm-specific training in order to build the basis for competitive advantage.

2.2. *The institutional environment: the role of government financial support policy for the development of new firms' competitive advantages*

While the RBV puts an emphasis on intangible, difficult to imitate resources and capabilities, it also acknowledges that the availability of "hard" resources is a necessary condition for firms to

reach their strategic goals and achieve competitive advantage (Barney 1991; Grant 1991). For new ventures in particular, researchers argue, financial resources are a critical ingredient for their development and serve to acquire other resources (e.g., new technology, licenses, etc.) thereby providing them with strategic flexibility that helps the adjustment to complex and dynamic environments (Patzelt and Shepherd 2009; Tan and Peng 2003). Extant literature recognizes that acquiring financial resources is a major hurdle to the development of new ventures (Hartarska and Gonzalez-Vega 2006; Tan and Peng 2003), and many governments have developed programs and policies to create an environment with improved financing opportunities (Patzelt and Shepherd 2009). The institutional environment, thus, can affect directly the access to critical resources for new firms.

North (1990, 2005) defines the institutional environment as the "rules of the game", where institutions are seen as the rules and governance systems that influence economic exchange. It is through regulative measures (Scott 1995) that policy makers have their biggest influence on entrepreneurs (Gohmann 2012). This influence can be through e.g., taxation, enhancement of free market, and protection of property rights, or more direct involvement into the resource flows available to new firms (Dierickx and Cool 1989). For example, some governments offer direct funding for new firms in the form of low-interest loans or subsidies, while others provide guarantees, thus facilitating debt financing. It is well known that new ventures often experience limited access to external finance due to market imperfections, such as information asymmetries and high transaction costs (Cassar 2004; Vanacker et al. 2011). Although the early finance literature assumed perfect market in which there are no resource constraints and firms are able to raise funds for all value-creating projects, subsequent research has challenged this assumption, pointing to the market imperfections that lead to difficulties for new firms to obtain external

financing (Cosh, Cumming, and Hughes 2009). The belief that there are market failures and that capital markets do not provide adequate funds for new ventures is one of the rationales for government assistance programs (Oh et al. 2009; Rotger et al. 2012). The institutional environment therefore, can play a crucial role by facilitating access to critical resources for new ventures.

In effect, extant literature has studied two types of public policy support: access to finance and non-financial support (see Table 1 for a summary of empirical literature linking support measures to different performance outcomes of new ventures). The literature has examined access to finance support measures such as grants and awards, loans with reduced interest rate, credit guarantees, and support for R&D (e. g., Cowling 2010; Cowling and Mitchell 2003; Garcia-Tabuenca and Crespo-Espert 2010; Lenihan and Hart 2006; Morris and Stevens 2010; Oh et al. 2009; Taymaz and Ucdogruk 2009); and non-financial support measures such as business advice and guided preparation (e.g., Collett et al. 2014; Mole et al. 2009, 2011; Rotger et al., 2012). We focus on financial support measures as those have been found to be of primary concern for new firms (Patzelt and Shepherd 2009; Tan and Peng 2003; Wiklund, Patzelt, and Shepherd 2009). In particular, we include government loans, guarantees, and government equity in our analysis. To further clarify, government loans refer to the amount of money the new venture borrowed from the government to run the business in a given year (e.g., Maggioni et al. 1999). Government guarantees denote whether the new venture made use of any loan guarantee from a federal government agency such as the Small Business Administration in the U.S., or any state or local government agencies (e.g. Kang and Heshmati 2008; Oh et al. 2009). Government equity represents whether the new firm obtained equity financing from a government agency.

"Insert Table 1 Here"

Institutional theory argues that formal institutions, such as laws and regulations, and specific programs, such as preferential funding and guarantee systems, can affect the level of resources available to new firms. We discuss in turn two mechanisms through which formal institutions can affect the resource flow for new companies, and consequently the formation of competitive advantage: (1) government *loans and equity* can enhance assets/resources accumulation; and (2) government *guarantees* can increase the new firms' legitimacy by providing positive signals to stakeholders, which further facilitates access to resources.

It has been acknowledged that new and small firms have limited access to financial resources, which ultimately limits their chances for survival and growth (Hartarska and Gonzalez-Vega 2006; Wiklund et al. 2009). Financial resources are considered the most general type of resource that can be converted into other types of resources, such as new technology that can help firms expand more and perform better (Bamford et al. 1997). By providing initial additional capital to new ventures, government *loans and equity* can therefore enhance the ability of new ventures to access those resources (e.g., technology) that will allow them to build capabilities and attain competitive advantage. In addition, financial capital provides resource slack, which further allows experimentation with new strategies and innovative projects, and increases the willingness of firms to pursue new opportunities (Wiklund et al. 2009; Zahra 1991). According to March (1991), the availability of resources is a prerequisite to engage in experimentation, risk-taking, and innovation. Thus, through enhancing the ability of new firms to access financial resources, government support programs can affect project developments that bring competitive advantage. Government financial support through loans and equity can allow new ventures not only to accumulate assets (Honjo and Harada 2006) and to obtain access to critical resources (e.g. technology, licenses and equipment), but also to invest in internal firm

processes such as employee training (a building block for human-capital based competitive advantage), and in activities that would bring market acceptance such as building a brand name and unique product designs (marketing-related intangible assets). Those can affect positively product quality and innovation, and subsequently customer satisfaction and sales (Maggioni et al. 1999). In this way, new firms can use government loans and equity (and the financial "slack" that they provide) to acquire, combine and recombine resources that bring competitive advantage. Maritan and Peteraf (2011) indicate that acquiring resources and capability building have been treated in the literature as separate or independent mechanisms for achieving competitive advantage. Our theorization advances RBV since it brings together those two mechanisms and relates them. Acquiring government financial resources (e.g. government loans, equity) has a positive influence in the process of building different types of competitive advantages (e.g. innovation, licensing-in, marketing, and human capital). Through the use of hard resources entrepreneurs can build capabilities and attain sustainable competitive advantages for their SMEs.

In addition to affecting directly the financial resource flow for new firms, government support via *guarantees* provides positive signals (Spence 1973) to lending institutions, as well as other stakeholders such as suppliers, thus increasing the legitimacy of the new firm in the eyes of stakeholders (DiMaggio and Powell 1983). Legitimacy signifies the acceptance of an organization by its environment (DiMaggio and Powell 1983; Hannan and Freeman 1989). Extant literature shows that firms considered legitimate by market stakeholders succeed more frequently in competitive markets (Heugens and Lander 2009). In particular, legitimacy is considered crucially important to new firms entering a market because it enhances the firms' chances of survival and growth (Bell, Moore, and Filatotchev 2012; Freeman, Carroll, and

Hannan 1983; Meyer and Rowan, 1977). The firm's trustworthiness is enhanced which makes it easier to obtain further support when needed. Zimmerman and Zeitz (2002) argue that legitimacy is a resource (necessary for acquisition of other resources, such as capital, technology, competent employees, etc.) for new ventures and that it provides a means to overcome the "liability of newness" and achieve the "license to operate." Legitimacy increases the availability of resources that support the growth of new firms (Stenholm, Acs and Wuebker 2013). As explained by Zimmerman and Zeitz (2002: 416), "new ventures need resources from their environment, and, in the end, the motivating factor for external actors to give such resources is their *belief* or *feeling* that the venture is indeed competent, efficient, effective, worthy, appropriate, and/or needed". It has been acknowledged that new and small firms suffer from credit rationing (Stiglitz and Weiss 1981) because of their lack of experience and collateral (Hanley and Girma 2006; Kang and Heshmati 2008). Government guarantees signal to external stakeholders such as banks that the organization is trustworthy and in this way facilitate support from those stakeholders in the process of resources acquisition. Previous literature has either found a positive impact (Heugens and Lander 2009) or negative influence (Barreto and Baden-Fuller 2006) of legitimacy on performance. Our theorization goes beyond direct effects and argues that through government guarantees, new ventures and entrepreneurs get access to more financial resources. However it is not necessarily having access to more resources that will directly impact performance. We hypothesize that legitimacy will have a positive impact on new ventures financial performance through proving resources to build capabilities and develop competitive advantages.

Thus, the institutional environment through formal laws and support programs can shape the ability of new firms to access critical resources for building capabilities and developing competitive advantages. Those resources can be direct financial support, as in receiving loans

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and government equity, or based on enhanced legitimacy as a result of government guarantees, which further facilitates the acquisition of resources. The new venture can then use available resources to build, combine and recombine valuable assets such as technology, licenses, competent employees, or brand equity in order to achieve competitive advantage. Therefore, we hypothesize:

H1: Government financial support will have a positive impact on the development of new firms' competitive advantages based on innovation, licensing-in, marketing, and human capital.

While especially important for new firms, financial resources are nevertheless a general type of resource that does not follow under the definition of difficult to imitate, firm-specific resource. As previously discussed, according to the RBV, it is valuable, rare, imperfectly imitable and non-substitutable resources that bring competitive advantage (Barney 1991; Collis 1991; Dierickx and Cool 1989). Therefore, we expect that the ability of new firms to convert financial resources into hard to imitate firm-specific intangible resources will be especially important in the process of combining and reconfiguring available resources to take advantage of opportunities. Financial support provides the initial resource inputs, but entrepreneurs need to build innovative processes and intangible resources such as trademarks, patents, brand names, and internal organizational development that will differentiate them on the marketplace. The RBV posits that once companies have developed valuable, hard to imitate resources and have leveraged them to achieve competitive advantage on the marketplace, firms will be rewarded with superior financial performance (Amit and Shoemaker 1993; Barney 1991). Therefore:

H2: Government financial support will *not* have a direct impact on new firm's financial performance, but only indirect impact through the development of competitive advantages based on innovation, licensing-in, marketing, and human capital.

Figure 1 presents our theoretical model and hypotheses. We have included a number of control variables that have been shown in prior work to influence survival and performance of new firms (e.g. Coad et al. 2013). In particular, different financing options, such as venture capitalists, business angels, family, and bank financing have been incorporated into the model, since new firms can have access to one or more of those sources of financing in addition to government financial support measures. Education and experience of the entrepreneur, as well as number of business owners can also have a major effect, because it is generally considered that those will give the new venture additional (intangible) resources that can be used to gain advantage on the marketplace. We also control for gender, industry, firm size, and whether the firm offers services or products.

"Insert Figure 1 Here"

3. Data, operationalization, and analytical models

3.1. Sample

To test the model proposed in Figure 1, we use a panel of new U.S. firms tracked since their inception, 2004 until 2010. In particular we use the longitudinal dataset elaborated and published by the Ewin Marion Kauffman Foundation. This longitudinal data set includes data collected in the Kauffman Firm Survey (KFS). The target population of the KFS was all businesses in the U.S. that started operations in 2004 (excluding wholly owned subsidiaries of existing businesses,

businesses inherited from someone else, and not-for-profit organizations). The baseline sample was composed of 32,469 businesses randomly selected, of which 4,928 businesses responded to questionnaires during the baseline collection period from July 2005 to July 2006. Information collected in the baseline survey refers to business operations in 2004. In the first follow-up, 3,998 businesses responded to questionnaires, for business operations in 2005. In the last follow-up, the sixth, (last set of data available), 2,126 interviews were completed during May-November 2011, and data was collected for business operations in 2010. For a more detailed information about the KFS methodology please refer to Ballou et al. (2008), DesRoches et al. (2012), Robb and DesRoches (2010), and Robb et al. (2010).

We used the latest public KFS data set available -that includes the baseline and all follow-up surveys- in order to elaborate a customized data set for the purposes of this research. We transformed the public KFS data set into a panel data format. The resulting data set is an unbalanced panel data of new businesses. The characteristics of our sample firms by 2-digit North American Industry Classification System (NAICS) indicate that new firms of our sample compete mainly in the following sectors: professional, scientific, and technical services (29%); metal manufacturing (11%); construction (8%); retail trade (8%); administrative and support and waste management and remediation services (7%); and wholesale trade (5%). Detailed distribution of the sample by 2-digit NAICS is available upon request.

3.2. Operationalization of variables

According to Figure 1, we have the following key constructs to operationalize: new firm financial performance, competitive advantages, and government financial support. We also

employ control variables as explained in section 2. Table 2 shows the variables used in this research, their operationalization, and measurements.

"Insert Table 2 Here"

3.2.1. *Performance.*

We use the firm annual profits at the end of the year. Recent research in entrepreneurship has suggested that profitability measures are a good indicator of firm success across industries (Davidsson, Steffens, and Fitzsimmons 2009; Kiviluoto 2013; Steffens, Davidsson, and Fitzsimmons 2009). In addition, we also use annual revenues at the end of the year[1]. Both measures have an ordinal scale of measurement since they contain 10 categories. The categories range from zero (0) that indicates a firm makes no profit/revenue in a particular year to nine (9) that indicate a firm makes more than $1 million in annual profits/revenues.

3.2.2. *Competitive advantage*

The concept of competitive advantage has proven difficult to operationalize, particularly because researchers suggest that firm managers might be poor at assessing their own competitive advantage (Greene, Mole, and Storey 2008). The KFS database provides entrepreneurs' self-assessment of whether the business has competitive advantage, and the variable is binary. Since this is a very crude measure of competitive advantage, we form a more developed measure of competitive advantage using panel data probit regression[2]. Thus, competitive advantage is estimated using a formative measurement construct (Diamantopoulos, Riefler, and Roth 2008).

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[1] We report estimations using annual revenues in section 4.4, robustness checks. We use annual revenues to avoid issues with the profit measure since profitability may be manipulated for tax purposes, or profits may be reinvested.
[2] We also employed panel data logit regression to check for robustness of the competitive advantage formation measure. Results are presented in section 4.4.

Formative construct measurements can be well suited to capture a more developed measure of competitive advantage. This is especially suitable because individual indicators of the competitive advantage are sometimes uncorrelated, which makes the aggregation of components [through reflective measurement] unrepresentative of a latent variable (Diamantopoulos et al., 2008). Research has estimated that a third or more of the constructs in the marketing, management, and strategic management journals have misspecified constructs as reflective (based on factor analysis) when they are formative (Hair et al. 2010; Jarvis, Mackenzie, and Podsakoff 2003; Podsakoff, Shen, and Podsakoff 2006). Formative measurement models challenge the characteristic of positively correlated measures as a necessary condition, since in specific cases measures show negative or zero correlations despite capturing the same concept (Diamantopoulos et al., 2008). A typical example is socio-economic status which is formed as a combination of education, income, occupation, and residence. As explained in Diamantopoulos and Winklhofer (2001), if any one of these measures increases, socio-economic status will also increase even if the other indicators did not change; conversely, if a person's socio-economic status increases, this would not necessarily be accompanied by an increase in all four measures. Diamantopoulos and Winklhofer (2001) and Hair et al. (2010) discuss several characteristics of formative measurement models which make them different from the reflective models. Most importantly, formative indicators characterize a set of distinct causes which are not interchangeable and there are no specific expectations about intercorrelations between the indicators; in fact, formative indicators might lack any correlation. The formative construct and its indicators are always observable measures that need to be specified in the measurement model. The use of formative constructs has not been without concerns, some examples being lack of internal validity and the potential for interpretational confounding based on the constructs

selected for identification and estimation purposes (Hair et al. 2010; Wilcox, Howell, and Breivik 2008). Internal validity lacks in formative constructs because of the nature of the indicators used to form a construct which do not necessarily need to be highly correlated among them (Hair et al. 2010). To avoid interpretational confounding in formative constructs, a clear specification of "the content domain of the construct" (i.e. indicators) is crucial (Hair et al. 2010, p. 739). Therefore we have theoretically developed the conceptual content of the competitive advantages in section 2.1.

Following the procedures of formative construct measurement, competitive advantage is estimated using the observable binary competitive advantage variable- available in the data set- as dependent variable and several observable firm-specific variables as independent (e.g., R&D expenditures, expenditures on design and branding, expenditures on organizational development, etc.). Specifically, we use the fitted probability resulting from the panel data probit regression as the measure of competitive advantage. Detailed results of the formative constructs estimations are available upon request. Following the theoretical discussion, we differentiate between competitive advantage based on innovation, licensing-in, marketing, and human capital. We also estimate an overall competitive advantage taking into account all types of competitive advantage in this study. Details about the operationalization of competitive advantages can be seen in Table 2.

3.2.3. *Government financial support*

In order to capture government financial support for new business, we use three different variables, as explained in section 2.2: the annual amount of *government loans* used by the

business, whether the business has any *government guarantees* from a federal agency, and whether the business obtained *government equity* financing.

As also indicated in section 2.2, we employ a number of control variables that have been shown in prior work to also influence competitive advantage and performance of new firms: family financing, bank financing, equity of business angels, equity of venture capitalists, service/product, number of owners, education and experience of owner, firm total assets (for size), gender, and industry[3]. Details about control variables operationalization and measurement are presented in Table 2.

3.3. Analytical models

In order to provide a parsimonious analysis and testing of the hypotheses in Figure 1, we employ two sets of analytical models. One set of models (models 1 to 4) is focused on testing the impact of government financial support on competitive advantage. In models 1 to 3, government support variables are introduced separately, while in model 4 –the full model- government support measures are introduced simultaneously. Because of the measurement nature of the variable competitive advantage [in terms of fitted probability] and the panel format of our data, we use panel data Tobit regression. The fitted probability nature of competitive advantage is censored with a lower bound value of 0 and an upper bound value of 1, and traditional ordinary least squares cannot parcel out this sample censoring bias. As a result, we employ the Tobit regression which is a censored regression model (Greene 1998; Heckman 1979). Studies in other disciplines such as marketing and new product development have used the Tobit regression method when

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[3] In addition to the binary scale we use for the variable industry, we also measure industry using 2-digit NAICS and include them in the competitive advantage and performance estimation models. We also check the validity of our estimations taking out industry NAICS 54 (professional, scientific, and technical services). Details of these robustness checks are presented in section 4.4.

the dependent variable is censored (e.g. Datar et al. 1997; Luo and Homburg 2007). Sample size for the competitive advantage models is 4,488 observations along the period of analysis.

The other set of analytical models (models 5 to 10) is focused on the impact of government financial support and competitive advantages on performance. Based on the measurement characteristics of the performance variable, we make use of ordered probit regression. This type of regression is preferred when the dependent variable has more than two categories following a sequential order (Hamilton 2009), in other words it can be used when the dependent variable has an ordinal scale of measurement. The performance variable contains 10 categories, from zero (0) that indicates a firm makes no profit in a particular year to nine (9) that indicate a firm makes more than $1 million in annual profits (see table 2 for more details). Studies in entrepreneurship have used similar methods employing either probit or logit models when the dependent variable requires it (see for example Collett et al. 2014; Hopp and Stephan 2012; Robson and Bennett 2000). Since our data has a panel data format, we control for systematic effects across time, which are common to all firms, by using dummies of the years under analysis. Sample size for the performance models is 2,766 observations.

4. Results

4.1. Descriptive statistics and correlations

Descriptive statistics and correlations of variables included in the performance models are presented in Appendix 1[4]. On average the probability that a firm in the sample will possess

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[4] For the readers interested in the descriptive statistics of variables used in the formation of competitive advantages, a description follows. Sixty-one percent (61%) of observations self-reported they have competitive advantage over competitors. Approximately, 17% of observations reported having spent $500 or more on R&D, and 4% of observations reported having 1 or more patents. Two point thirty-three percent (2.33%) of observations self-reported to licensed-in any patent while 3.54% reported to licensed-in any copyright. Approximately, 20% of observations reported to have expenditures in the design of new and improved products, 31% indicated to have expenditures in

overall competitive advantage is about 0.53. The average probability for a sample firm to possess

innovation, licensing-in, marketing, and human capital based competitive advantages is 0.57,

0.66, 0.53, and 0.54 respectively. In the competitive advantage models, approximately 0.42

percent of observations used government loans. Three point five percent of new businesses had

loan guarantees from a federal government agency. About 0.2 percent of sample firms obtained

equity financing from a government agency. About ninety-five percent of the observations had

profits annually, where 45% made up to $25,000 and 49% obtained from more than $25,000 to

$1 million in profits.

Overall competitive advantage, as well as innovation, licensing-in, marketing, and human

capital-based competitive advantages have a positive and significant correlation with

performance. Of all government financial support variables, only government guarantees show a

positive and significant correlation with performance. Government loans, government

guarantees, and government equity are positively correlated with overall competitive advantage

as well as with innovation, marketing, and human capital based competitive advantages.

Government guarantees is the only public support variable that is positively correlated with

licensing-in based competitive advantage. Of the control variables, bank financing, service,

product, total assets, industry, number of business owners, gender, and business owner's years of

experience have a positive correlation with business performance.

4.2. The effect of government financial support on competitive advantage

Table 3 provides the estimated coefficients of the effects of government financial support on

overall competitive advantage, and innovation, licensing-in, marketing, and human capital-based

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brand development such as advertising or marketing, 8% reported to have expenditures in organizational
development and 20% in worker training.

competitive advantages. In general, the results of the competitive advantage models support H1, as we explain subsequently.

4.2.1. Overall competitive advantage.

In models 1 to 3, when government financial support measures are introduced separately, government guarantees (.038, p<.05), government equity (.101, p<.10), and government loans (.006, p<.10, one-tailed test) show a positive effect on overall competitive advantage formation (due to space limit detailed results of analytical models 1 to 3 are available from the authors). In the full model presented in Table 3, when government financial support variables are introduced simultaneously, both government guarantees (.035, p<.05) and government equity (.093, p<.10) remain significant. In model 4, government loans do not show a significant effect on overall competitive advantage. Together, these results suggest that government financial support through government guarantees and equity impacts overall competitive advantage formation. Of the other financing variables considered in the study, family financing (.006, p<.10), equity of business angels (.014, p<.001), and equity of venture capitalists (.013, p<.10) show a statistically significant and positive effect on overall competitive advantage formation. Other control variables such as product, number of owners, level of education, total assets, and industry have also a significant and positive impact on overall competitive advantage.

"Insert Table 3 Here"

4.2.2. Innovation-based competitive advantage.

In Table 3, of all government financial support variables, only government guarantees reveal a positive and significant effect on innovation-based competitive advantage (.021, p<.05). Of the control financing variables, only equity of business angels (.01, p<.001) and equity of venture capitalists (.011, p<.001) have a significant positive effect on competitive advantage based on innovation. All remaining control variables have also a significant impact on innovation based competitive advantage formation.

4.2.3. Licensing-in based competitive advantage.

When government support measures are introduced separately in models 1 to 3 (available from the authors), government loans (.0014, p<.10, one-tailed test), government guarantees (.004, p<.10, one-tailed test), and government equity (.019, p<.10, one-tailed test) have a weak significant effect on licensing-in based competitive advantage. In the full model presented in Table 3, however, only government equity (.018, p<.10, one-tailed test) shows a weak significant effect on licensing-in based competitive advantage. Control variables, in particular bank financing (-.001, p<.001), equity of business angels (.002, p<.01), and equity of venture capitalists (.003, p<.01) significantly affect licensing-in based competitive advantage. All of the remaining control variables, with the exception of service and owner experience, also impact licensing-in competitive advantage.

4.2.4. Marketing-based competitive advantage.

In analytical models 1 to 3, only government equity (.097, p<.10) has a positive and significant effect on marketing-based competitive advantage. In the full model in Table 3, again only government equity (.094, p<.10) has a statistically significant effect on marketing-based

competitive advantage. Additionally, other forms of financing such as family financing (.006, p<.10) and equity of business angels (.008, p<.01) show a statistically significant effect on marketing-based competitive advantage. Of the other control variables, product, number of business owners, owner level of education, total assets, and industry have a significant impact on marketing-based competitive advantage.

4.2.5. Human capital-based competitive advantage.

When introduced separately, government guarantees (.029, p<.001) and government equity (.061, p<.10) show significant effects on human capital-based competitive advantage. In the full model presented in Table 3, both government guarantees (.029, p<.001) and government equity (.057, p<.10, one-tailed test) have a simultaneous and significant impact on human capital-based competitive advantage. Other forms of financing such as family financing (.003, p<.10, one-tailed test), bank financing (.002, p<.05), equity of business angels (.005, p<.01), and equity of venture capitalists (.005, p<.10) have statistically significant effects on human capital competitive advantage. Other control variables such as service, product, owner's level of education, total assets, industry, owners' experience, and gender have also a significant impact on human capital-based competitive advantage.

   Together, all these results suggest that government financial support through government guarantees and equity has a significant effect on overall competitive advantage formation and human capital-based competitive advantage. Government guarantees also affect the development of innovation-based competitive advantage; while government equity has an effect on the development of marketing-based competitive advantages. All three government financial support

measures used in this study (loans, guarantees, and equity) have weaker significant impacts on the development of licensing-in based competitive advantage.

Variance inflation scores of the independent variables in the models of table 3 fall within the acceptable range. The explanatory power of all models is statistically significant on the basis of Rho, Wald X^2, and log-likelihood. Together, these findings demonstrate that only some measures of government financial support are strongly associated with the development of competitive advantage, in partial support of H1.

4.3. *The effects of government financial support and competitive advantage on performance*

Table 4 shows the results of the effects of government financial support measures and competitive advantage on performance. Government financial support variables – government loans, government guarantees, and government equity – do not reveal a direct statistically significant effect on performance, as the results of model 5 indicate. However, as expected, government financial support variables have an indirect effect on performance through the effect of overall and specific competitive advantages. We use the residual of overall and specific competitive advantages obtained in the models presented in Table 3, which incorporates the indirect effect of government financial support variables on performance. For instance, model 6 shows that the residual of the overall competitive advantage (.467, p<.001) has a positive and significant effect on performance. The residuals of innovation (.836, p<.001), licensing-in (1.237, p<.05), marketing (.315, p<.05), and human capital (.769, p<.001) -based competitive advantages have also statistically significant effects on performance, as the results of models 7 to 10 respectively indicate.

Other financing variables such as bank financing (.021, p<.10), equity of business angels (-.09, p<.10), and equity of venture capitalists (.2, p<.10, one tailed-test) also show direct significant effects on performance in models 5 to 10. As reported in the models of Table 4, number of owners (.069, p<.01), as well as owner's level of education (.03, p<.01), total assets (.30, p<.001), industry (.12, p<.05), and owner's gender (.11, p<.05) have also statistically significant direct and positive effects on performance. Pseudo-R^2 of models 5 to 10 ranges between .085 and .087. X^2 of all models is statistically significant at p<.001. Log- likelihood of the models ranges between -5027.52 and -5015.79. Altogether, the findings of the performance models in Table 4 reveal that competitive advantage is a variable that connects government financial support and performance of new businesses. These results support H2 from this study.

"Insert Table 4 Here"

4.4. Robustness checks

We conducted several additional analyses. First, we checked the quadrature approximation used for forming the constructs of competitive advantage and used for estimating the impact of government financial support measures on competitive advantage. In particular it is important to check quadrature used in estimations of panel data probit and Tobit regressions. In the original models we used 12 quadrature integration points. To check for sensitivity of estimations we used 8 and 16 quadrature integration points. Coefficients of the models did not change by more than .0003, which means that the choice of quadrature points did not significantly affect the outcome, and the results of Table 3 as well as the estimations of formative constructs (available upon request) can be interpreted confidently.

Second, we re-estimated the construct formation of overall and specific competitive advantages using panel data logistic regression. The signs and significance of all coefficients were the same as in our original estimation; there were minor differences in the size of coefficients. We also checked for the sensitivity of quadrature integration points; coefficients did not change by more than 0.0002.

Third, we re-estimated models 1 to 10 taking out firms in the 2-digit NAICS 54 [professional, scientific, and technical services], since these firms represent about 30% of the sample observations. Sample size for the competitive advantage models reduced to 3,184, while sample size of the performance models reduced to 1,904 observations. In general, the re-estimated results – signs and significance of coefficients of government financial support variables- remained consistent with the ones showed in Table 3. The slight variation was that government loans significantly affect overall competitive advantage and licensing-in based competitive advantage in the full model. Government guarantees also significantly affected marketing-based competitive advantage in the full model. In addition to that, the signs and significance of the coefficients for the effect of government financial support variables on performance remained very similar as the ones obtained in models 5 to 10, Table 4.

We also re-estimated models 1 to 10 including dummies for each of the sectors (2-digit NAICS), instead of the binary variable high-tech versus non-high tech industries. Signs and coefficients of government loans, government guarantees, and government equity as well as those of the rest of the variables included in models 1 to 10 did not change significantly.

Additionally, we used an alternative measure of performance in models 5 to 10. In particular we used annual revenues at the end of the year, measured as an ordinal scale, the same scale as the profit variable. Revenues have been suggested by previous research to be a relevant

performance variable to consider (Jennings, Jennings, and Greenwood 2009). In general, the results remained consistent with our original findings. The exception was that government guarantees had a positive and significant effect (.4, p<.001) on annual revenues.

We also employed exploratory factor analysis to *empirically* separate specific competitive advantages. The analysis showed significant Kaiser-Meyer-Olkin and acceptable cumulative explained variance. In the factor analysis, three factors were obtained: innovation related resources, marketing and human capital related resources, and licensing-in related resources. We then re-run formative measurement models for overall and specific competitive advantages as explained in 3.2.2 and analytical models 1 to 10. All findings give additional support to our original findings.

Seventh, we run an additional analysis of the impact of government loans on competitive advantage through the impact on firms' assets. In particular we estimated the effect of government loans on firms' total assets and estimate the fitted value of firms' assets. We re-run analytical models 1 to 4 using the fitted firms' total assets as an additional independent variable. Results show that fitted firms' total assets do not have significant effects on innovation, licensing-in, marketing, and human capital based competitive advantages. However, fitted firms' total assets have a significant effect on overall competitive advantage at p<.10. Therefore government loans may work through an effect on the assets of the firms only for the case of overall competitive advantage.

Finally, we re-run analytical models 6 to 10 using moderating effects of government support measures on the relationship between competitive advantages and performance of new firms[5]. We follow the procedure of Aiken and West (1991), i.e. we mean-centered variables of interest. Results reveal that effects of government support measures as moderating variables on

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[5] We thank an anonymous reviewer for suggesting the last three additional robustness checks.

performance are not statistically significant. These findings provide strong support to our central analysis, that is, competitive advantages are intermediate outcomes between government support measures and performance of new firms. All robustness checks estimations are not presented here for reasons of space but are available upon request.

5. Discussion and conclusions

The aim of this study was to suggest a new lens to look at the effect of public policy support on new firms' performance. We presented a theoretical model that includes competitive advantage formation as an intermediary variable before searching for the direct impact of support mechanisms on firms' financial performance. The results from the analytical models are in line with the proposed hypotheses. Public policy support, in particular access to finance through government guarantees and equity, was found to impact positively competitive advantage. In turn, competitive advantage leads to increased profits for new firms. Government guarantees and equity did not have direct effects on profits in our model, but only indirect effects through the contribution to competitive advantage formation. Previous research has linked financial support measures directly to performance variables, such as sales, profitability and productivity for new firms and the results have been mixed (Garcia-Tabuenca and Crespo-Espert 2010; Morris and Stevens 2010; Oh et al., 2009). Our study is an early attempt to disentangle theoretically and empirically the process of how public policy support can help new firms build competitive advantage, and therefore provide a rationale for why a direct effect of government financial support on new firms' financial performance might not be found. We argued that public policies related to access to finance can boost initial "hard" resources for new firms that will give them legitimacy among stakeholders and will provide them with a resource "slack" that can be used

for assets enhancement, new project developments, or brand and organizational development. It is, however, the role of the entrepreneur to combine and utilize the available resources in a way that will consequently bring stronger marketplace positions and thus, better performance.

Some researchers have argued that encouraging more people to become entrepreneurs is a bad public policy and that the solution might be in encouraging only high potential new firms (e.g. Shane 2009). Our research suggests an additional approach to policy makers – help new companies build the capabilities that they will need to be able to compete successfully on the market. The approach suggested here is neither that of indiscriminately financing new ventures and using as a measure of public policy the number of new firms created / supported by government agencies, nor that of measuring top-line or bottom-line performance of the supported ventures to gauge the effectiveness of government policies. Instead, we propose a look at the process through which companies build the necessary resources and capabilities that will give them competitive advantage, and use this as a guide for support programs and/or subsequent renewals of support for new businesses. As the process of building competitive advantages is usually not a short-term one, it is necessary that support programs be designed with a long-term view in mind. This might be challenging, particularly as some researchers (Huggins and Williams 2011) have found that policy-makers are under pressure to measure short term results at the expense of long-term nurturing of small businesses. Huggins and Williams (2011) critique the "short-termism" of regional policy in the UK, stating that facilitating cultural change towards entrepreneurship is a long-term commitment. In a similar fashion, we contend that facilitating the development of competitive advantages among new firms requires more than measuring direct effects of government support on the financial performance of firms. We suggest that a more sensible approach would be to develop a set of metrics based on a variety of key competences

related to innovation, marketing, human resources or other theoretically grounded measures of competitive advantage, as outcomes of public policy. Such a conceptualization of metrics combined with appropriate timelines can help track the development of new ventures that have received support over time.

Our empirical analysis reinforces the idea that support for access to finance has an important role to play at the beginning when new firms are searching for and building their unique resources and capabilities (see also Saridakis, Mole, and Hay 2013). From then on, performance is largely dependent on the entrepreneur's capacity to mobilize available resources and the firm's resources and capabilities. Specifically, our research reports that different public policy support measures have different impact depending on the types of competitive advantage. For instance, government guarantees help firms develop innovation and human capital-based competitive advantages. This finding is very relevant and suggests that the legitimacy-enhancing mechanism of government guarantees has a crucial role at the early stages of competitive developments of new firms. Guarantees signal to other stakeholders that the firm propositions are credible such that they can obtain support for their innovation and can boost the morale of employees; guarantees can also give an additional support to new businesses to access financial support from financial institutions or other stakeholders. Government equity, on the other hand, was found to affect human capital and marketing-based competitive advantages. The latter finding is very interesting as it may be that government ownership helps new businesses build brand reputation and thus obtain support from supply chain partners and customers. These findings, however, require further empirical research in order to delve deeper into the relationship between government equity and marketing-based competitive advantage. Our main results indicate that government loans have weak significant effects on the development of overall and licensing-in

competitive advantages studied in this research. Our additional robustness tests further verify the finding regarding licensing-in and suggest that, when we exclude NAICS 54 (professional, scientific, and technical services) from the analysis, government loans help firms build licensing-in based competitive advantage. Government loans can help new businesses to buy-in intellectual property developed by organizations outside the business with the idea of upgrading their innovation capabilities, building on developments of others, and possibly allowing them to develop new products and enter new markets.

It is noteworthy that education– another measure of the level of intangible resources the entrepreneur brings – also has a direct effect on performance after controlling for all other variables, including competitive advantage. This confirms the importance of entrepreneur's knowledge and skills as key elements for developing competitive advantage and enhancing performance. This finding is in line with other entrepreneurship studies that have confirmed the key role of the human capital, embodied by the entrepreneur's education and knowledge, for the performance of the firm (e.g., Cetindamar et al. 2012). Additionally, gender was found to significantly influence specific competitive advantages and performance of new ventures. For instance, male-owned new ventures have a higher chance than female-owned new ventures of developing competitive advantages based on innovation and licensing-in; while female-owned ventures are more likely to develop human capital based competitive advantage than those of their male counterparts. These findings are in line with previous research that indicates men and women entrepreneurs have different motivations towards growth and enterprise formation (Manolova et al. 2012; McGowan et al. 2012; Orser, Riding, and Stanley 2012). Cetindamar et al. (2012) as well as Manolova et al. (2007) found that human capital factors (such as education and perceived benefits from experience) are key influencers of new enterprise formation and

growth expectancy for women entrepreneurs. Our findings suggest that women-owned new enterprises are more likely than men-owned enterprises to invest in employee training and organizational development to be competitive in the marketplace. In terms of financial performance, male-owned new ventures tend to have higher profits. However, it is important to note that the different motivations and focus of women entrepreneurs call for different performance measures that can adequately reflect them. In line with Díaz-García and Welter (2013), our findings suggest that there is a need for different dimensions on which to compare female and male-owned ventures. There are many other important performance dimensions, such as social, personal, or environmental (Clarke, Holt, and Blundel 2014; Korsgaard and Anderson 2011) that should be accounted for in future research.

Furthermore, in the current paper we wanted to assess the net effect of public policy support for access to finance, beyond the effect that other sources of financing could have – thus, we included several other funding sources as controls. From those control variables, family financing, business angels, and venture capitalists were found to contribute positively to competitive advantage, while bank financing and venture capitalists contributed positively to performance. From a theoretical perspective, it is important to account for those additional variables related to financing, since RBV researchers have argued that the "rareness" of a resource that firms possess is not enough to ensure competitive advantage and enhanced performance, and therefore firms should focus instead on the rareness of resource bundles or substitute resources (e.g., Peteraf and Bergen 2003). Studies trying to link directly government financial support to performance outcomes have found mixed results, and one explanation might be that although those resources might be rare, there are other resources that can be used for similar purposes and act as substitute (e.g., venture capital, family financing, etc.). In the current

study, our focus was on the effect of public policy support, and therefore we did not venture into more analysis related to other types of financing. However, future research could explore more in-depth and in more details the different financing options for new and small businesses and compare their effect on competitive advantage and/or financial performance. This can further expand our understanding on the way in which different substitute resources work to help firms build competitive advantage.

Our study gives support to another important but largely neglected aspect of RBV. In a review of the empirical literature employing RBV, Newbert (2007) found that the majority of the research examines the relationship between a specific resource, capability or core competence and performance, *not* competitive advantage. Yet, as argued by Powell (2001), those constructs should not be used interchangeably and researchers should not assume that if a firm has achieved superior performance, then that firm possesses competitive advantage. This approach is methodologically flawed (Powell 2001) because the relationship between competitive advantage and performance is unidirectional (Newbert 2007). Such an approach therefore does not give a clear understanding of the theory. Our study confirms the importance of differentiating between the two variables and examining the mechanisms by which government support can lead to superior performance instead of looking for direct relationship.

In addition, we contribute to the connection between the acquisition of strategic resources in the market and building capabilities internally in order to develop competitive advantages, streams of research that have been studied in the RBV literature as separate mechanisms for developing competitive advantage (Maritan and Peteraf 2011). Our theoretical model and results show that resource acquisition impacts capability building and that government financial support measures help build innovation, licensing-in, marketing, and human capital based competitive

advantages. Our study also theorizes and demonstrates that through the use of hard resources (such as government loans and equity) entrepreneurs can build capabilities and attain sustainable competitive advantages for their SMEs (Foss 2011).

Our study also sheds light on debates in institutional theory. Specifically, our model and results contribute to the ongoing debate of the positive or negative impact of legitimacy on financial performance (Barreto and Baden-Fuller 2006; Heugens and Lander 2009). We showed that through government guarantees –as a legitimacy enhancing mechanism– new ventures get access to more financial resources. However having access to more resources will not necessarily directly impact performance. We found that legitimacy enhancing mechanisms such as government guarantees have a positive influence on new ventures performance through building capacities and developing competitive advantages.

Furthermore, combining RBV with institutional theory aspects, this study presents interesting synergies between the two theoretical approaches. In particular, we have shown how resource flows influenced by the institutional environment (direct financial recourses in the form of e.g. loans or legitimacy-enhancing resources such as guarantees) can affect the ability of new ventures to develop competitive advantages. Researchers have called for a broader view of the creation of capabilities and competitive advantage - a view that goes beyond the corporate boundaries (Prahalad and Ramaswamy 2000) and acknowledges interlinks among firm-specific resources and building on external resources. We have demonstrated that legitimacy and financial resource flows provided by the external institutional environment should be converted into firm-specific capabilities in order to achieve better financial performance for new ventures.

Of note is that our study considered a sample of U.S. firms and the results of this research might be specific to the institutional environment in which those firms operate. The types of

firms and entrepreneurs who can access public funding will reflect policy priorities and those

priorities differ among countries and regions. The US context following the global financial

crisis is characterized by a renewed emphasis on support for small businesses, and in particular,

increased public funding for new businesses with innovation potential. Since many jobs were lost

during the crisis (approximately 6 million) support for SMEs access to finance is seen as a way

to stimulate entrepreneurship growth and job creation, including providing more opportunities

for employees to develop their knowledge and restoring a healthy middle class. Furthermore, the

US government has committed to policies that would help the country be a global innovation

leader. Support related to R&D is thus also crucially important, as exemplified by the relatively

large R&D funding as a percentage of GDP compared to other OECD countries (OECD 2012). It

is likely that because of those priorities, government support was found in our study to influence

competitive advantages based on innovation and human capital. Marketing-related competitive

advantages were also influenced (although not to the same degree as innovation and human

capital) and this relates to the government policy emphasis on improving the environment for

commercialization and exporting for SMEs products and services. The results of our study

therefore, can resonate for countries that have similar priorities and have implemented support

programs in line with those priorities. For instance, Japan has been recognized as having strong

focus on innovation. Honjo and Harada (2006) examine the SME Creative Business Promotion

Law in Japan that was introduced in order to support SMEs that are pioneers in new areas of

business through entries, R&D and commercialization of research. Their results were mixed and

the authors did not find strong support for employment and sales growth for those firms. It is

possible that the approach presented in our study - a longitudinal examination of the process

through which government support works to help firms develop competitive advantages – could

yield a more complete assessment of the role of support policies. In a similar way, several countries, such as Korea, France, Sweden, Israel, have been active providing a relatively high direct government support for R&D (as a percentage of GDP), according to OECD (2012). We can expect that our findings can resonate with those countries as well. An interesting case is presented by Slovenia and the Russian Federation in that they also rank at the top of government support for R&D. The distinctive market environment in those countries, however, could mean that our findings might not be directly applicable. Slovenia has gone through transition and is an EU member state; while the Russian Federation still maintains a distinctive business environment characterized by transition processes that is likely to affect the way government support is accessed and enacted by small businesses. Clearly, further research is needed in order to comprehend how differences in public support priorities and business and cultural environment can impact the formation of competitive advantage and the financial performance of firms across countries.

Finally, in the current study, we only considered public policy support related to access to finance. Research to date has suggested that knowledge accumulation through business advice and counseling can help entrepreneurs in the early stages of their new venture developments (e.g. Chrisman and McMullan 2000; Mole et al. 2009, 2011; Rotger et al. 2012). Future research can explore the relative weight of financial and non-financial government support for the creation of competitive advantage.

To conclude, our study shows empirical evidence that competitive advantage is an important intermediary outcome in the relationship between public financial support and performance of new businesses. We call for a different way to measure the effectiveness of support programs that takes into account the process of using initial resources to build firm-specific, valuable and

inimitable assets and capabilities that have the potential to lead to competitive advantage for new

ventures.

References

Aiken, Leona S., and S. G. West. 1991. *Multiple Regression: Testing and Interpreting Interactions*. Newbury Park, CA: Sage Publications.

Amit, R., and P. J. H. Schoemaker. , 1993. "Strategic Assets and Organizational Rent." *Strategic Management Journal* 14 (1): 33-46.

Anand, B. N., and T. Khanna. 2000. "The Structure of Licensing Contracts." *Journal of Industrial Economics* 48 (1): 103-135.

Audretsch, D. B., and M. Keilbach. 2004. "Entrepreneurship Capital and Economic Performance." *Regional Studies* 38 (8): 949-959.

Ballou, J., T. Barton, D. DesRoches, F. Potter, E.J. Reedy, A. Robb, S. Shane, and Z. Zhao. 2008. "The Kauffman Firm Survey: Results from the Baseline and First Follow-up Survey." Kauffman the Foundation of Entrepreneurship, March.

Bamford, C. E., T. J. Dean, and P. P. McDougall. 1997. *Initial Strategies and New Venture Growth: An Examination of the Effectiveness of Broad vs. Narrow Breadth Strategies.* Frontiers of Entrepreneurship Research. Wellesley, MA: Babson College.

Barney, J. B. 1986. "Strategic Factor Markets: Expectations, Luck, and Business Strategy." *Management Science* 32 (10): 1231-1241.

Barney, J. B. 1991. "Firm Resources and Sustained Competitive Advantage." *Journal of Management* 17 (1): 99-120.

Barney, J. B., D. J. Ketchen, and M. Wright. 2011. "The Future of Resource-Based Theory: Revitalization or Decline?" *Journal of Management* 37 (5): 1299-1315.

Barney, J. B., and P. M. Wright. 1998. "On Becoming a Strategic Partner: The Role of Human Resources in Gaining Competitive Advantage." *Human Resource Management* 37 (1): 31-46.

Barreto, I., and C. Baden-Fuller. 2006. "To Conform or to Perform? Mimetic Behaviour, Legitimacy-based Groups and Performance Consequences." *Journal of Management Studies* 43 (7): 1559-1581.

Baumgartner, D., T. Schulz, and I. Seidl. 2013. "Quantifying Entrepreneurship and its Impact on Local Economic Performance: A Spatial Assessment in Rural Switzerland." *Entrepreneurship & Regional Development* 25 (3-4): 222-250.

Becker, G.S. 1964. *Human Capital*. Columbia University Press, New York.

Bell, R. G., C. B. Moore, and I. Filatotchev. 2012. "Strategic and Institutional Effects on Foreign IPO Performance: Examining the Impact of Country of Origin, Corporate Governance, and Host Country Effects." *Journal of Business Venturing* 27: 197–216.

Bennett, R. J., and P. J. A. Robson. 2003. "Changing Use of External Business Advice and Government Supports by SMEs in the 1990s." *Regional Studies* 37 (8): 795–811.

Berthon, P., M. T. Ewing , and J. Napoli. 2008. "Brand Management in Small to Medium-Sized Enterprises." *Journal of Small Business Management* 46 (1): 27-45.

Boyd, B. K., S. Gove, and M. A. Hitt. 2007. "Construct Measurement in Strategic Management Research: Illusion or Reality?" *Strategic Management Journal* 26: 239-257.

Cassar, G. 2004. "The Financing of Business Start-ups." *Journal of Business Venturing* 19: 261–83.

Cetindamar, D., V. K. Gupta, E. E. Karadeniz, and N. Egrican. 2012. "What the Numbers Tell: The Impact of Human, Family and Financial Capital on Women and Men's Entry into Entrepreneurship in Turkey." *Entrepreneurship & Regional Development* 24 (1-2): 29-51.

Chrisman, J. J., W. E. McMullan, and J. Hall. 2005. "The Influence of Guided Preparation on the Long-Term Performance of New Ventures." *Journal of Business Venturing* 20: 769–791.

Chrisman, J.J., and W. E. McMullan. 2000. "A Preliminary Assessment of Outsider Assistance as a Knowledge Resource: The Long-Term Impact of New Venture Counseling." *Entrepreneurship Theory and Practice* 24 (3): 37-53.

Clarke, J., R. Holt, and R. Blundel. 2014. "Re-imagining the growth process: (co)-evolving metaphorical representations of entrepreneurial growth." *Entrepreneurship & Regional Development*, forthcoming.

Coad, A., J. Frankish, R. G. Roberts, and D. J. Storey. 2013. "Growth Paths and Survival Chances: An Application of Gambler's Ruin Theory." *Journal of Business Venturing* 28: 615-632.

Collett, N., N. R. Pandit, and J. Saarikko. 2014. "Success and Failure in Turnaround Attempts. An Analysis of SMEs within the Finnish Restructuring of Enterprises Act." *Entrepreneurship & Regional Development* 26 (1-2): 123-141.

Collis, D. J. 1991. "A Resource-Based Analysis of Global Competition: The Case of the Bearings Industry." *Strategic Management Journal* 12: 49-68.

Cosh, A., D. Cumming, and A. Hughes. 2009. "Outside Entrepreneurial Capital." *The Economic Journal* 119 (540): 1494–1533.

Cowling, M. 2010. "The Role of Loan Guarantee Schemes in Alleviating Credit Rationing in the UK." *Journal of Financial Stability* 6: 36-44.

Cowling, M. and P. Mitchell. 2003. "Is the Small Firms Loan Guarantee Scheme Hazardous for Banks or Helpful to Small Business?" *Small Business Economics* 21: 63-71.

Danvila del Valle, I., and M. A. Sastre Castillo. 2009. "Human Capital and Sustainable Competitive Advantage: An Analysis of the Relationship Between Training and Performance." *International Entrepreneurship & Management Journal* 5 (2): 139-163.

Datar, S., C. Jordan, S. Kekre, S. Rajiv, and K. Srinivasan. 1997. "Advantages of Time-Based New Product Development in a Fast-Cycle Industry." *Journal of Marketing Research*, 36 (February), 36-49.

Davidsson, P., P. Steffens, and J. Fitzsimmons. 2009. "Growing Profitable or Growing from Profits: Putting the Horse in Front of the Cart?" *Journal of Business Venturing* 24 (4): 388–406.

Day, G. S. 1990. *Market Driven Strategy: Processes for Creating Value*. New York: The Free Press.

DesRoches, D., F. Potter, B. Santos, A. Sengmavong, and Y. Zheng. 2012. *Kauffman firm survey sixth follow-up methodology report*. Mathematica Policy Research, March 27.

Di Benedetto, C. A., R. J. Calantone, and C. Zhang. 2003. "International Technology Transfer: Model and Exploratory Study in the People's Republic of China." *International Marketing Review* 20 (4): 446-462.

Diamantopoulos, A. & Winklhofer, H.M. 2001. "Index Construction with Formative Indicators: An Alternative to Scale Development." *Journal of Marketing Research*, 38 (2): 269-277.

Diamantopoulos, A., P. Riefler, and K. P. Roth. 2008. "Advancing Formative Measurement Models." *Journal of Business Research* 61: 1203-1218.

Díaz-García, M. C. and F. Welter. 2013. "Gender Identities and Practices: Interpreting Women Entrepreneurs' Narratives." *International Small Business Journal* 31(4): 384–404.

Dierickx, I., and K. Cool. 1989. "Asset Stock Accumulation and Sustainability of Competitive Advantage." *Management Science* 35 (12): 1504-1511.

DiMaggio, P.J., and W. W. Powell. 1983. "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields." *American Sociological Review* 48: 147-160.

Drucker, P. 1983. *Post-capitalist Society*. New York: Harper Business.

Fitjar, R. D., M. Gjelsvik, and A. Rodríguez-Pose. 2013. "The Combined Impact of Managerial and Relational Capabilities on Innovation in Firms." *Entrepreneurship & Regional Development* 25 (5-6): 500-520.

Foss, N. J. 2011. "Why Micro-Foundations for Resource-Based Theory Are Needed and What They May Look Like." *Journal of Management* 37 (5): 1413-1428.

Freeman, J., G. R. Carroll, and M. T. Hannan. 1983. "The Liability of Newness: Age Dependence in Organizational Death Rates." *American Sociological Review* 48 (5): 692-710.

Fritsch, M. 2008. "How Does New Business Formation Affect Regional Development? Introduction to the Special Issue." *Small Business Economics,* 30:1-14.

Fritsch, M., and P. Mueller. 2004. "Effects of New Business Formation on Regional Development over Time." *Regional Studies* 38 (8): 961-975.

Garcia-Tabuenca, A., and J. L. Crespo-Espert. 2010. "Credit Guarantees and SME Efficiency." *Small Business Economics* 35: 113-128.

Gilbert, B. A., D. B. Audretsch, and P. P. McDougall. 2004. "The Emergence of Entrepreneurship Policy." *Small Business Economics* 22: 313-323.

Gohmann, S. F. 2012. "Institutions, Latent Entrepreneurship, and Self-Employment: An International Comparison." *Entrepreneurship Theory and Practice* 36 (2): 295-321.

Grande, J., E. L. Madsen, and O. J. Borch. 2011. "The Relationship Between Resources, Entrepreneurial Orientation and Performance in Farm-based Ventures." *Entrepreneurship & Regional Development* 23 (3-4): 89-111.

Grant, R. M. 1991. "The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation." *California Management Review* 33 (3): 114-135.

Greene, F., K. Mole, and D. Storey. 2004. "Does More Mean Worse? Three Decades of Enterprise Policy in the Tees Valley." *Urban Studies* 41 (7): 1207-1228.

Greene, F., K. Mole, and D. Storey. 2008. *Three Decades of Enterprise Culture: Entrepreneurship, Economic Regeneration and Public Policy*, London: Palgrave.

Greene, W. H. 1998. *Econometric Analysis*. 3rd Edition. Upper Saddle River, NJ: Prentice Hall.

Grindley, P. C., and D. J. Teece. 1997. "Managing Intellectual Capital: Licensing and Cross-Licensing in Semiconductors and Electronics." *California Management Review* 39 (2): 8-41.

Gulati, R. 1999. "Network Location and Learning: The Influence of Network Resources and Firm Capabilities on Alliance Formation." *Strategic Management Journal* 20: 397–420.

Hair, J. F., W. Black, B. J. Babin, and R. E. Anderson. 2010. *Multivariate Data Analysis.* Upper Saddle River, NJ: Prentice Hall.

Hamilton, L. C. 2009. *Statistics with Stata*. 10th Edition. Belmont, CA: Brooks/Cole, Cengage Learning.

Hanley, A. and S. Girma. 2006. "New Ventures and their Credit Terms." *Small Business Economics* 26 (4): 351-364.

Hannan, M. T., and J.H. Freeman. 1989. *Organizational Ecology*. Cambridge: Harvard University Press.

Hart, M., and R. Scott. 1994. "Measuring the Effectiveness of Small Firm Policy: Some Lessons from Northern Ireland." *Regional Studies* 28 (8): 849-858.

Hartarska, V., and C. Gonzalez-Vega. 2006. "What Affects New and Established Firms' Expansion? Evidence from Small Firms in Russia." *Small Business Economics* 27: 195-206.

Hatch, N. W., and J. H. Dyer. 2004. "Human Capital and Learning as a Source of Sustainable Competitive Advantage." *Strategic Management Journal* 25: 1155-1178.

Hauser, J. R., and D. Clausing. 1988. "The House of Quality." *Harvard Business Review*, May-June, 63-73.

Heckman, J. 1979. "Sample Selection Bias as a Specification Error." *Econometrica*, 47 (January), 153-161.

Heugens, P. P. M. A. R., and M. W. Lander. 2009. "Structure! Agency! (and Other Quarrels): A Meta-Analysis of Institutional Theories of Organization." *Academy of Management Journal* 52 (1): 61-85.

Honjo, Y., and N. Harada. 2006. "SME Policy, Financial Structure and Firm Growth: Evidence from Japan." *Small Business Economics* 27: 289-300.

Hopp, C., and U. Stephan. 2012. "The influence of socio-cultural environments on the performance of nascent entrepreneurs: Community culture, motivation, self-efficacy and start-up success." *Entrepreneurship & Regional Development*, 24 (9-10): 917-945.

Hsieh, M. H. 2004. "Measuring Global Brand Equity using Cross-National Survey Data." *Journal of International Marketing* 12 (2): 28-57.

Huggins, R., and N. Williams. 2011. "Entrepreneurship and Regional Competitiveness: The Role and Progression of Policy." *Entrepreneurship & Regional Development* 23 (9-10): 907-932.

Jarvis, C. B., S. B. Mackenzie, and P. M. Podsakoff. 2003. "A Critical View of Construct Indicators and Measurement Model Misspecification in Marketing and Consumer Research." *Journal of Consumer Research,* 30 (September):199-218.

Jennings, J. E., P. D. Jennings, and R. Greenwood. 2009. "Novelty and New Firm Performance: The Case of Employment Systems in Knowledge-Intensive Service Organizations." *Journal of Business Venturing* 24: 338-359.

Kang, J. W., and A. Heshmati. 2008. "Effect of Credit Guarantee Policy on Survival and Performance of SMEs in Republic of Korea." *Small Business Economics* 31: 445-462.

Keller, K. L. 1993. "Conceptualizing, Measuring, and Managing Customer-based Brand Equity." *Journal of Marketing*, 57 (January), 1-22.

Keller, K. L., and D. R. Lehmann. 2006. "Brands and Branding: Research Findings and Future Priorities." *Marketing Science* 25 (6): 740-759.

Kim, Y.J. 2005. "The Impact of Firm and Industry Characteristics on Technology Licensing." *Advanced Management Journal* 70 (1): 42-49.

Kitching, John. 2006. "A Burden on Business? Reviewing the Evidence Base on Regulation and Small-Business Performance." *Environment and Planning C: Government and Policy* 24: 799-814.

Kiviluoto, N. 2013. "Growth as Evidence of Firm Success: Myth or Reality?" *Entrepreneurship & Regional Development* 25 (7-8): 569-586.

Korsgaard, S., and A. R. Anderson. 2011. "Enacting Entrepreneurship as Social Value Creation." *International Small Business Journal* 29 (2): 135–151.

Krake, F. B. G. J. M. 2005. "Successful Brand Management in SMEs: A New Theory and Practical Hints." *Journal of Product & Brand Management* 14 (4): 228-238.

Lado, A. A.,and M. C. Wilson. 1994. "Human Resource Systems and Sustained Competitive Advantage: A Competency-Based Perspective." *Academy of Management Review* 19 (4): 699-727.

Lambrecht, J., and F. Pirnay. 2005. "An Evaluation of Public Support Measures for Private External Consultancies to SMEs in the Walloon Region of Belgium." *Entrepreneurship & Regional Development* 17 (2): 89-108.

Lee, J., and D. Miller. 1999. "People Matter: Commitment to Employees, Strategy and Performance in Korean Firms." *Strategic Management Journal* 20 (6): 579-593.

Lenihan, H. and M. Hart. 2006. "Evaluating the Additionality of Public Sector Assistance To Irish Firms: A Question of Ownership?" *Policy Studies* 27 (2): 115-133.

Lepak, D.P., S.A. Snell. 1999. "The Human Resource Architecture: Toward a Theory of Human Capital Allocation and Development." *Academy of Management Review*, 24: 31-48.

Lerner, J. 1999. "The Government as Venture Capitalist: The Long-Run Impact of The SBIR Program." *Journal of Business* 72 (3): 285-318.

Lerner, J. 2010. "The Future of Public Efforts to Boost Entrepreneurship and Venture Capital." *Small Business Economics* 35: 255–264.

Lu, Y., L. Zhou, G. Bruton, and W. Li. 2010. "Capabilities as a Mediator Linking Resources and the International Performance of Entrepreneurial Firms in an Emerging Economy." *Journal of International Business Studies* 41: 419–436.

Luo, X., and C. Homburg. 2007. "Neglected Outcomes of Customer Satisfaction." *Journal of Marketing,* 71 (April), 133-149.

Maggioni, V., M. Sorrentino, and M. Williams. 1999. "Mixed Consequences of Government Aid for New Venture Creation: Evidence from Italy." *Journal of Management & Governance* 3 (3): 287-305.

Manolova, T. S., C. G. Brush, L. F. Edelman, and K. G. Shaver. 2012. "One Size Does not Fit All: Entrepreneurial Expectancies and Growth Intentions of US Women and Men Nascent Entrepreneurs." *Entrepreneurship & Regional Development* 24 (1-2): 7-27.

Manolova, T. S., N. M. Carter, I. M. Manev, and B. S. Gyoshev. 2007. "The Differential Effect of Men and Women Entrepreneurs' Human Capital and Networking on Growth Expectancies in Bulgaria." *Entrepreneurship Theory and Practice* May: 407-426.

March, J. G. 1991. "Exploration and Exploitation in Organizational Learning." *Organization Science*, 2: 71-87.

Maritan, C. A., and M. A. Peteraf. 2011. "Building a Bridge Between Resource Acquisition and Resource Accumulation." *Journal of Management* 37 (5): 1374-1389.

McGowan. P., C. L. Redeker, S. Y. Cooper, and K. Greenan. 2012. "Female Entrepreneurship and the Management of Business and Domestic Roles: Motivations, Expectations and Realities." *Entrepreneurship & Regional Development* 24 (1-2): 53-72.

Meccheri, N., and G. Pelloni. 2006. "Rural Entrepreneurs and Institutional Assistance: An Empirical Study from Mountainous Italy." *Entrepreneurship and Regional Development*, 18: 371-392.

Meyer, J. W., and B. Rowan. 1977. "Institutionalized Organizations: Formal Structure as Myth and Ceremony." *American Journal of Sociology* 83: 340-363.

Michael S. C., and J. A. Pearce. 2009. "The Need for Innovation as a Rationale for Government Involvement in Entrepreneurship." *Entrepreneurship & Regional Development* 21 (3): 285-302.

Mole, K. F., M. Hart, S. Roper, and D. S. Saal. 2009. "Assessing the Effectiveness of Business Support Services in England: Evidence from a Theory-Based Evaluation." *International Small Business Journal* 27: 557-582.

Mole, K. F., M. Hart, S. Roper, and D. S. Saal. 2011. "Broader or Deeper? Exploring the Most Effective Intervention Profile for Public Small Business Support." *Environment and Planning A* 43: 87-105.

Molloy, J. C., C. Chadwick, R. E. Ployhart, and S. J. Golden. 2011. "Making Intangibles "Tangible" in Tests of Resource-Based Theory: A Multidisciplinary Construct Validation Approach." *Journal of Management* 37 (5): 1496-1518.

Morris, M., and P. Stevens. 2010. "Evaluation of a New Zealand Business Support Programme Using Firm Performance Micro-Data." *Small Enterprise Research* 17: 30-42.

Murdock, K. A. 2012. "Entrepreneurship Policy: Trade-offs and Impact in the EU." *Entrepreneurship & Regional Development* 24 (9-10): 879-893.

Newbert, S. L. 2007. "Empirical Research on the Resource-Based View of the Firm: An Assessment and Suggestions for Future Research." *Strategic Management Journal* 28: 121–146.

Niska, M., and K. M. Vesala. 2013. "SME Policy Implementation as a Relational Challenge." *Entrepreneurship & Regional Development* 25 (5-6): 521-540.

North, D. 1990. *Institutions, Institutional Change, and Economic Performance: Political Economy of Institutions and Decisions*. Cambridge, UK: Cambridge University Press.

North, D. 2005. *Understanding the Process of Economic Change*. Princeton, NJ: Princeton University Press.

North, D., and D. Smallbone. 2006. Developing Entrepreneurship and Enterprise in Europe's Peripheral Rural Areas: Some Issues Facing Policy-Makers." *European Planning Studies* 14 (1): 41-60.

O'Cass, A., and L.V. Ngo. 2007. Market Orientation versus Innovative Culture: Two Routes to Superior Brand Performance." *European Journal of Marketing* 41 (7/8): 868-887.

OECD. 2012. *OECD Science, Technology and Industry Outlook 2012*, OECD Publishing.

OECD. 2013. *OECD Science, Technology and Industry Scoreboard 2013,* OECD Publishing. *http://dx.doi.org/10.1787/sti_scoreboard-2013-en*

Oh, I., J. Lee, A. Heshmati, and G. G. Choi. 2009. "Evaluation of Credit Guarantee Policy Using Propensity Score Matching." *Small Business Economics* 33: 335-351.

Orser, B., A. Riding, and J. Stanley. 2012. "Perceived Career Challenges and Response Strategies of Women in the Advanced Technology Sector." *Entrepreneurship & Regional Development* 24 (1-2): 73-93.

Patzelt, H., and D. A. Shepherd. 2009. "Strategic Entrepreneurship at Universities: Academic Entrepreneurs' Assessment of Policy Programs." *Entrepreneurship Theory and Practice* 33 (1): 319-340.

Penrose, E. T. 1959. *The Theory of the Growth of the Firm.* New York: John Wiley.

Peteraf, M. A. and M. E. Bergen. 2003. "Scanning Dynamic Competitive Landscapes: A Market-Based and Resource-Based Framework." *Strategic Management Journal* 24: 1027-1041.

Podsakoff, N. P., W. Shen, and P. M. Podsakoff. 2006. "The Role of Formative Measurement Models in Strategic Management Research: Review, Critiques, and Implications for Future Research." *Research Methodology in Strategic Management,* 3: 197-252.

Polo-Peña, A. I., D. M. Frías-Jamilena, and M. Á. Rodríguez-Molina. 2012. "Marketing Practices in the Spanish Rural Tourism Sector and their Contribution to Business Outcomes." *Entrepreneurship & Regional Development* 24 (7-8): 503-521.

Porras, J. I., and R. C. Silvers. 1991. "Organizational Development and Transformation." *Annual Review of Psychology,* 42: 51-78.

Powell, T. C. 2001. "Competitive Advantage: Logical and Philosophical Considerations." *Strategic Management Journal* 22: 875–888.

Prahalad, C.K., and V. Ramaswamy. 2000. "Coopting Customer Competence." *Harvard Business Review* 78 (1): 79-87.

Rauch, A., and S. A. Rijsdijk. 2013. "The Effects of General and Specific Human Capital on Long-term Growth and Failure of Newly Founded Businesses." *Entrepreneurship Theory and Practice,* 37 (4): 923-941.

Rauch, A., M. Frese, and A. Utsch. 2005. "Effects of Human Capital and Long-term Human Resources Development and Utilization on Employment Growth of Small-Scale Businesses: A Causal Analysis." *Entrepreneurship Theory and Practice,* 29 (6): 681-698.

Robb, A., and D. DesRoches. 2010. *Kauffman Firm Survey: Baseline/First/Second/Third Follow-Up/Fourth Follow-Up*. Study Documentation, April 12.

Robb, A., E. J. Reedy, J. Ballou, D. DesRoches, F. Potter, and Z. Zhao. 2010. *An Overview of the Kauffman Firm Ssurvey: Results from the 2004-2008 Data*. Kauffman the Foundation of Entrepreneurship, May.

Robson, P. J. A., and R. J. Bennett. 2000. "The use and impact of business advice by SMEs in Britain: an empirical assessment using logit and ordered logit models." *Applied Economics* 32 (13): 1675-1688.

Rosenbusch, N., J. Brinckmann, and A. Bausch. 2011. "Is Innovation Always Beneficial? A Meta-Analysis of the Relationship between Innovation and Performance in SMEs." *Journal of Business Venturing,* 26:441-457.

Rotger, G. P., M. Gørtz, and D. J. Storey. 2012. "Assessing the Effectiveness of Guided Preparation for New Venture Creation and Performance: Theory and Practice." *Journal of Business Venturing* 27: 506-521.

Runyan, R. C., P. Huddleston, and J. L. Swinney. 2007. "A Resource-Based View of the Small Firm: Using a Qualitative Approach to Uncover Small Firm Resources." *Qualitative Market Research: An International Journal* 10 (4): 390-402.

Saridakis, G., K. Mole, and G. Hay. 2013. "Liquidity Constraints in the First Year of Trading and Firm Performance." *International Small Business Journal* 31: 520-535.

Scott, W. R. 1995. *Institutions and Organizations*, Thousand Oaks, CA: Sage Publications.

Shane, S. 2009. "Why Encouraging More People to Become Entrepreneurs is Bad Public Policy." *Small Business Economics* 33: 141-149.

Smallbone, D., F. Welter, A. Voytovich, and I. Egorov. 2010. "Government and Entrepreneurship in Transition Economies: The Case of Small Firms in Business Services in Ukraine." *The Service Industries Journal* 30 (5): 655-670.

Spence, M. 1973. "Job Market Signaling." *Quarterly Journal of Economics* 87 (3): 355-374.

Spencer, J., and C. Gómez. 2004. The Relationship among National Institutional Structures, Economic Factors, and Domestic Entrepreneurial Activity: A Multicountry Study." *Journal of Business Research* 57: 1098-1107.

Srivastava, R. K., L. Fahey, and H. K. Christensen. 2001. "The Resource-based View and Marketing: The role of Market-based Assets in Gaining Competitive Advantage." *Journal of Management,* 27: 777-802.

Srivastava, R.K., T. A. Shervani, and L. Fahey. 1998. "Market-Based Assets and Shareholder Value: A Framework for Analysis." *Journal of Marketing* 62 (January): 2-18.

Steffens, P., P. Davidsson, and J. Fitzsimmons. 2009. "Performance Configuration over Time: Implications for Growth- and Profit-oriented Strategies." *Entrepreneurship: Theory and Practice* 33 (1): 125–148.

Stenholm, P., Z. J. Acs, and R. Wuebker. 2013. "Exploring Country-level Institutional Arrangements on the Rate and Type of Entrepreneurial Activity." *Journal of Business Venturing* 28: 176–193.

Stiglitz, J. E, and A. Weiss. 1981. "Credit Rationing in Markets with Imperfect Information." *The American Economic Review* 71 (3): 393-410.

Tan, J., and M. Peng, M. 2003. "Organizational Slack and Firm Performance during Economic Transitions: Two Studies from an Emerging Economy." *Strategic Management Journal* 24 (13): 1249-1263.

Taymaz, E., and Y. Ucdogruk. 2009. "Overcoming the Double Hurdles to Investing in Technology: R&D Activities of Small Firms in Developing Countries." *Small Business Economics* 33: 109-128.

Teece, D. J., G. Pisano, and A. Shuen. 1997. "Dynamic Capabilities and Strategic Management" *Strategic Management Journal* 18 (7): 509-533.

Tzeng, C. 2009. "A Review of Contemporary Innovation Literature: A Schumpeterian Perspective." *Innovation: Management, Policy & Practice*, 11: 373-394.

Úbeda García, M. 2005. "Training and Business Performance: The Spanish Case." *International Journal of Human Resource Management* 16 (9): 1691-1710.

Unger, J. M., A. Rauch, M. Frese, and N. Rosenbusch. 2011. "Human Capital and Entrepreneurial Success: A Meta-analytical Review." *Journal of Business Venturing,* 26: 341-358.

Van Stel, A., and D. Storey. 2004. "The Link Between Firm Births and Job Creation: Is there a Upas Tree Effect?" *Regional Studies* 38 (8): 893-909.

Vanacker, T., S. Manigart, M. Meuleman, and L. Sels. 2011. "A Longitudinal Study on the Relationship between Financial Bootstrapping and New Venture Growth." *Entrepreneurship & Regional Development* 23 (9-10): 681-705.

Vargo, S. L., and R. F. Lusch. 2004. "Evolving to a New Dominant Logic for Marketing." *Journal of Marketing*, 68 (January): 1-17.

Von Bargen, P., D. Freedman, and E. R. Pages. 2003. The Rise of the Entrepreneurial Society. *Economic Development Quarterly* 17 (4): 315-324.

Von Hippel, E., S. Thromke, and M. Sonnack. 1999. "Creating Breakthroughs at 3M." *Harvard Business Review*, 78 (5): 3-12.

Webster, M., and D. Sugden. 2003. "Implementation of Virtual Manufacturing by a Technology Licensing Company." *International Journal of Operations & Production Management* 23 (5/6): 448-469.

Welter, F. 2011. "Contextualizing Entrepreneurship - Conceptual Challenges and Ways Forward." *Entrepreneurship Theory and Practice* 35 (1): 165–184.

Wernerfelt, B. 1984. "A Resource-based View of the Firm." *Strategic Management Journal* 5 (2): 171-180.

Wiklund, J., H. Patzelt, and D. A. Shepherd. 2009. "Building an Integrative Model of Small Business Growth." *Small Business Economics* 32: 351-374.

Wilcox, J. B., R. D. Howell, and E. Breivik. 2008. "Questions About Formative Measurement." *Journal of Business Research,* 61 (12): 1219-1228.

Wong, P. K., Y. P. Ho, and E. Autio. 2005. "Entrepreneurship, Innovation and Economic Growth: Evidence from GEM Data." *Small Business Economics* 24: 335-350.

Wren, C., and D. J. Storey. 2002. "Evaluating the Effect of Soft Business Support upon Small Firm Performance." *Oxford Economic Papers* 54: 334-365.

Zahra, S. 1991. "Predictors and Financial Outcomes of Corporate Entrepreneurship: An Explorative Study." *Journal of Business Venturing* 6: 259-285.

Zander, I., and U. Zander. 2005. "The Inside Track: On the Important (But Neglected) Role of Customers in the Resource-Based View of Strategy and Firm Growth." *Journal of Management Studies* 42 (8): 1519-1548.

Zecchini, S., and M. Ventura. 2009. "The Impact of Public Guarantees on Credit to SMEs." *Small Business Economics* 32: 191-206.

Zhao, X., M. Frese, and A. Giardini. 2010. "Business Owners' Network Size and Business Growth in China: The Role of Comprehensive Social Competency." *Entrepreneurship & Regional Development* 22 (7-8): 675-705.

Zimmerman, M. A., and G. J. Zeitz. 2002. "Beyond Survival: Achieving New Venture Growth by Building Legitimacy." *Academy of Management Review* 27 (3): 414-431.

Table 1. Empirical studies on the impact of public policy support measures on new venture performance (firm level of analysis)

Type of public policy support	Examples of studies (authors)	Measure of support policy	Performance measure (firm level)	Major results	Commonly used control variables
Access to finance	Lerner (1999)	Small Business Innovation Development Program (SBIR): awards / grants	Sales, employment increase	The presence of an SBIR award alone had little relationship with sales and employment growth. Rather, only the interactions between the SBIR indicator and venture activity in the ZIP code were consistently significant.	Size, ownership, age of firm, gender, sector, internal finance, employment, capital, export indicator
	Maggioni, Sorrentino and Williams (1999)	Direct government aid: loan with a reduced interest rate; grant	Sales, sales growth, change in employees	Aided and non-aided new ventures do not significantly differ with regard to growth; government aid does affect survival, but gives rise to firms which are not fully efficient.	
	Honjo and Harada (2006)	SME Creative Business Promotion Law (CBPL): subsidies, loans and tax breaks (A dummy variable indicating whether firm j was approved by a prefectural governor under the CBPL in period t.)	Employment, assets and sales growth	CBPL and cash flow have an impact on the growth of younger SMEs. The coefficient of CBPL is positive and significant only in the assets growth model. Employment and sales growth is not strongly sensitive to this law.	
	Kang and Heshmati (2008)	Credit guarantee policy	Growth of sales, employment, and productivity	Credit guarantee frequency enables guaranteed firms to achieve good performances in general. On the other hand, guarantee amounts fails to increase or maintain employment in both contemporary and lagged model.	
	Oh et al. (2009)	Credit guarantee policy	Growth rates of productivity, sales, employment, investment, R&D, wage level; survival	Credit guarantees influenced significantly firms' ability to maintain their size, and increase their survival rate, but not to increase their R&D and investment and hence, their growth in productivity.	
	Taymaz and Ucdogruk (2009)	Support for R&D (binary variable: 1 if the firm received any public R&D support, 0 otherwise).	R&D decision and R&D intensity	Public R&D encourages firms to intensify their R&D efforts. The impact of R&D support is stronger for small firms.	
	Zecchini and Ventura (2009)	Italy's State-funded guarantee scheme for SMEs	Borrowing cost and credit supply to SMEs	The cost reduction is evaluated as being in the range of 16–20%, while the additional supply of credit by banks is estimated at 12.4% at the median.	
	Garcia-Tabuenca and Crespo-Espert (2010)	SME-support measure - the allocation of guarantees / preferential funding by the Spanish guarantee system	efficiency of SMEs (profitability and productivity)	The advantages can be observed mainly in the weakest companies, where the capacity to tackle projects is facilitated.	
	Morris and Stevens (2010)	Government assistance variables (binary and $ amount). The business support program is the Growth Services Range.	Sales, value added, labour productivity	The program had a significant positive impact on the sales of firms, although the impact on value-added and productivity was less conclusive.	

Type of public policy support	Examples of studies (authors)	Measure of support policy	Performance measure (firm level)	Major results	Commonly used control variables
Nonfinancial support (e.g., "soft" support through guided preparation)	Chrisman and McMullan (2000)	Counseling for pre-venture clients under the Small Business Development Center (SBDC) program (US)	Survival, employment, sales growth, innovation	SBDC clients may be developing sustainable competitive advantage that allows them to survive and grow at higher rates compared to the general population of start-ups in the US.	Age, gender, location, education, industry, experience, firm size, owner-manager characteristics, market characteristics
	Wren and Storey (2002)	The assistance for consultancy advice provided towards marketing under the UK Enterprise Initiative	Sales turnover, employment and survival	The policy has no impact on the survival of smaller SMEs, and it is most effective in the mid-range SMEs, where it raises survival rates by about 4% over the longer run and growth rates in surviving firms by up to 10% per annum.	
	Chrisman, McMullan, and Hall (2005)	Guided preparation (measured by the number of hours spent in direct contact with a counselor, as well as on work prompted by the advice or direction counselor(s).	Sales and employment	After controlling for industry, venture age, education, prior experience, and initial market scope, there are positive relationships between the time that entrepreneurs spend in guided preparation and the sales and employment of their ventures 3 to 8 years after start-up.	
	Mole et al. (2009)	Business advice under the Business Link program (UK)	Sales growth and employee growth	The study found no significant effects on sales growth from assistance but found a significant employment boost from intensive assistance.	
	Mole et al. (2011)	How Business Link Organizations' managers managed dependencies and the consequences for the effectiveness of the business support they provided	Employment growth, sales growth, and sales per employee	Intensive assistance boosted employment. Nonintensive assistance increased sales.	
	Rotger, Gørtz, and Storey (2012)	Guided preparation (three levels of program participation)	Firm survival; employment; firm sales; "growth firm"	The program contributes to the survival and size of new ventures, but its impact on growth is less clear.	
	Hopp and Stephan (2012)	Socially supportive institutional environment, i.e. the extent to which nascent entrepreneurs perceive relevant community actors, including government, to be supportive	Entrepreneur's start-up motivation and self-efficacy, which consequently influence venture emergence (positive cash flow)	The perception of available community support from government, financiers and local groups reassures and motivates the nascent entrepreneur to expend effort. Socially supportive culture did not influence entrepreneurial self-efficacy.	
	Collett, Pandit and Saarikko (2014)	The Finnish Restructuring of Enterprises Act (the Act provides a formal framework in which advisers, entrepreneurs and creditors work together to save and turnaround viable firms)	Survival (causes and recovery actions to successful turnaround or failure)	The Finnish Restructuring of Enterprises Act has resulted in good rates of business survival. Fifty-four per cent of SMEs in the sample turnaround and survive.	

Table 2. Operationalization of variables

Variable	Operationalization	Measurement
Performance	Annual Profit, at the end of the year. We also employ annual revenues and describe results in section 4.4.	Ordinal scale: 0; 1: $500 or less; 2: $501 to $1,000; 3: $1,001 to $3,000; 4: $3,001 to $5,000; 5: $5,001 to $10,000; 6: $10,001 to $25,000; 7: $25,001 to $100,000; 8: $100,001 to $1,000,000; 9: $1,000,001 or more
Overall Competitive Advantage	Probability of possessing competitive advantage. This probability is the result of a formative construct taking into consideration binary competitive advantage as the observed dependent variable and items of competitive advantage based on innovation, licensing-in, marketing, and human capital as independent variables	Self-estimated using panel data probit regression
Binary Competitive Advantage	Did business have competitive advantage over competitors?	Binary scale: 0 No, 1 Yes
Innovation based competitive advantage	Probability of possessing innovation based competitive advantage. Formative construct based on binary competitive advantage as the observed dependent variable and R&D and patents as independent variables	Self-estimated using panel data probit regression
R&D	Money spent on R&D	Ordinal scale, same as performance variable
Patents	Total number of patents	Ratio scale: approximately from 0 to 100
Licensing-In based competitive advantage	Probability of possessing licensing-in based competitive advantage. Formative construct based on binary competitive advantage as the observed dependent variable and patent-in and copyright-in as independent variables	Self-estimated using panel data probit regression
Patent-In	Did the business license in any patent?	Binary scale: 0 No, 1 Yes
Copyright-In	Did the business license in any copyright?	Binary scale: 0 No, 1 Yes
Marketing based competitive advantage	Probability of possessing marketing based competitive advantage. Formative construct based on binary competitive advantage as the observed dependent variable and design and branding as independent variables	Self-estimated using panel data probit regression
Design	Did the business have expenditures in the design of new and improved products and services?	Binary scale: 0 No, 1 Yes
Branding	Did the business have expenditures in brand development such as advertising or marketing?	Binary scale: 0 No, 1 Yes
Human capital based competitive advantage	Probability of possessing human capital based competitive advantage. Formative construct based on binary competitive advantage as the observed dependent variable and organizational development and worker training as independent variables	Self-estimated using panel data probit regression
Organizational Development	Did the business have expenditures in organizational development such as company formation expenses or management consulting?	Binary scale: 0 No, 1 Yes
Worker Training	Did the business have expenditures in worker training?	Binary scale: 0 No, 1 Yes
Government Loans	Amount used of government loans annually for the business	Ordinal scale, same as performance variable
Government Guarantees	Did the business have any loan guarantees from a federal government agency, such as the Small Business Administration, or any state or local government agencies?	Binary scale: 0 No, 1 Yes
Government Equity	Did the business obtain equity financing from a government agency?	Binary scale: 0 No, 1 Yes
CONTROLS:		
Family Financing	Amount used of family loans annually for the business	Ordinal scale, same as performance variable
Bank Financing	Amount used of commercial bank loans annually for the business	Ordinal scale, same as performance variable
Equity of Business Angels	Amount the business obtained equity financing from any of the following except spouses, life-partners, parents, in-laws or children of the owners, venture capitalists	Ordinal scale, same as performance variable
Equity of Venture Capitalists	Amount the business obtained equity financing from venture capitalists	Ordinal scale, same as performance variable
Service	Does business provide service?	Binary scale: 0 No, 1 Yes
Product	Does business provide products?	Binary scale: 0 No, 1 Yes
Owners	The total number of owners	Ratio scale: approximately from 1 to 10
Education	Level of education completed by owner with the highest percentage of equity [We use this since the great majority of the businesses under study have only one owner]	Ordinal scale:1: Less than 9th grade; 2: Some high school, but no diploma; 3: High school graduate (diploma or equivalent diploma [GED]); 4: Technical, trade or vocational degree; 5: Some college, but no degree; 6: Associate's degree; 7: Bachelor's degree; 8: Some graduate school but no degree; 9: Master's degree; 10: Professional school or doctorate
Total Assets	Total assets at the end of the year	Ordinal scale same as performance variable
Industry	High-technology industry indicator	Binary scale: 0 Non-high tech, 1 High tech
Experience	Owner (with the highest percentage of equity) years of work experience in industry which business competes	Ratio scale: approximately from 0 to 60
Gender	Is the owner (with the highest percentage of equity) male or female?	Binary scale: 0 Female, 1 Male

Table 3. The effect of government financial support measures on competitive advantage (n=4488)

Independent Variables	Overall Competitive Advantage	Innovation based Competitive Advantage	Licensing-in based Competitive Advantage	Marketing based Competitive Advantage	Human Capital based Competitive Advantage
Government Loans	.005	.000	.001	.002	-.000
	(.005)	(.003)	(.001)	(.005)	(.003)
Government Guarantees	.035*	.021*	.003	.013	.029**
	(.015)	(.01)	(.003)	(.014)	(.009)
Government Equity	.093†	-.009	.018†[a]	.094†	.057†[a]
	(.057)	(.037)	(.012)	(.053)	(.035)
Family Financing	.006†	.002	-.000	.006†	.003†[a]
	(.003)	(.002)	(.001)	(.003)	(.002)
Bank Financing	-.001	-.000	-.001**	-.001	.002*
	(.001)	(.001)	(.001)	(.001)	(.001)
Equity of Business Angels	.014***	.01***	.002**	.008**	.005**
	(.003)	(.002)	(.001)	(.003)	(.002)
Equity of Venture Capitalists	.013**	.011***	.003**	.002	.005†
	(.005)	(.003)	(.001)	(.004)	(.003)
Service	-.011†[a]	-.032***	.000	.003	.011*
	(.009)	(.006)	(.002)	(.008)	(.005)
Product	.067***	.039***	.004**	.059***	.009*
	(.007)	(.004)	(.001)	(.006)	(.004)
Owners	.019***	.018***	.003***	.01***	.001
	(.004)	(.002)	(.001)	(.003)	(.002)
Education	.015***	.008***	.001†	.01***	.004***
	(.002)	(.001)	(.000)	(.002)	(.001)
Total Assets	.013***	.005***	.001**	.01***	.007***
	(.001)	(.001)	(.000)	(.001)	(.001)
Industry	.092***	.067***	.008***	.065***	.011*
	(.011)	(.007)	(.002)	(.009)	(.006)
Experience	.000	.0004†	.000	-.000	.0003†[a]
	(.000)	(.0002)	(.000)	(.000)	(.0002)
Gender	.008	.016**	.004*	.003	-.008†
	(.009)	(.006)	(.002)	(.008)	(.005)
Constant	.269***	.434***	.645***	.348***	.442***
	(.02)	(.013)	(.004)	(.017)	(.011)
Sigma_u	.14***	.092***	.023***	.108***	.066***
Sigma_e	.117***	.075***	.027***	.115***	.078***
Rho	.588***	.599***	.408***	.468***	.417***
Wald X^2	603.06***	601.83***	123.01***	406.69***	202.70***
Log Likelihood	1846.60	3796.11	8897.79	2288.84	4146.82

Note: †p<.10, *p<.05, **p<.01, ***p<0.001. [a] one-tailed test. Standard errors are between parentheses. Sigma_u_{it} = time-invariant individual random effect (v_i) + a time-varying idiosyncratic random error (Sigma_e_{it}). Method used: Panel Data Tobit Regression. Only results of analytical model 4 for each competitive advantage are presented in this table. Results of analytical models 1 to 3 –when government support measures are introduced separately- are available from the authors.

Table 4. The effect of government financial support measures and competitive advantage on performance (n=2766)

Independent Variables	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
			Dependent: Performance			
Overall Competitive Advantage[b]		.467*** (.11)				
Innovation-based Competitive Advantage[b]			.836*** (.173)			
Licensing-In based Competitive Advantage[b]				1.237* (.587)		
Marketing-based Competitive Advantage[b]					.315* (.124)	
Human Capital-based Competitive Advantage[b]						.769*** (.19)
Government Loans	.019 (.053)	.017 (.053)	.01 (.053)	.022 (.053)	.016 (.053)	.015 (.053)
Government Guarantees	-.123 (.117)	-.142 (.117)	-.13 (.12)	-.132 (.117)	-.13 (.117)	-.135 (.117)
Government Equity	.972 (1.098)	.883 (1.1)	.749 (1.101)	1.016 (1.098)	.92 (1.098)	.858 (1.1)
Family Financing	.008 (.029)	.012 (.029)	.014 (.029)	.008 (.029)	.01 (.029)	.009 (.03)
Bank Financing	.021† (.011)	.021† (.011)	.021† (.011)	.021† (.011)	.021† (.011)	.021† (.011)
Equity of Business Angels	-.095† (.051)	-.099† (.051)	-.093† (.051)	-.091† (.051)	-.097† (.051)	-.104* (.051)
Equity of Venture Capitalists	.203†[a] (.149)	.211†[a] (.15)	.231†[a] (.15)	.21†[a] (.149)	.203†[a] (.149)	.203†[a] (.15)
Service	-.008 (.065)	-.01 (.066)	-.007 (.066)	-.012 (.066)	-.002 (.066)	-.018 (.066)
Product	-.038 (.045)	-.045 (.045)	-.046 (.045)	-.039 (.045)	-.041 (.045)	-.041 (.045)
Owners	.069** (.023)	.074** (.023)	.073** (.023)	.069** (.023)	.071** (.023)	.07** (.023)
Education	.03** (.01)	.03** (.01)	.031** (.01)	.03** (.01)	.03** (.01)	.03** (.01)
Total Assets	.304*** (.011)	.302*** (.011)	.302*** (.011)	.305*** (.011)	.303*** (.011)	.302*** (.011)
Industry	.121* (.056)	.126* (.056)	.13* (.057)	.121* (.056)	.123* (.056)	.121* (.056)
Experience	.002 (.002)	.002 (.002)	.002 (.002)	.002 (.002)	.002 (.002)	.002 (.002)
Gender	.112* (.05)	.113* (.05)	.114* (.05)	.112* (.05)	.113* (.05)	.114* (.05)
Year Effects	Included	Included	Included	Included	Included	Included
Pseudo-R^2	.085***	.087***	.087***	.086***	.086***	.087***
LR X^2	935.60	953.65	959.07	940.05	942.09	952.06
Log Likelihood	-5027.52	-5018.50	-5015.79	-5025.30	-5024.28	-5019.29

Note: †$p<.10$, *$p<.05$, **$p<.01$, ***$p<0.001$. [a] one-tailed test. [b] Residuals of respective competitive advantages of Table 3.

Standard errors are between parentheses. Method used: Ordinal Probit Regression

Figure 1. Competitive advantage as an intermediate outcome between government financial support and the performance of new firms
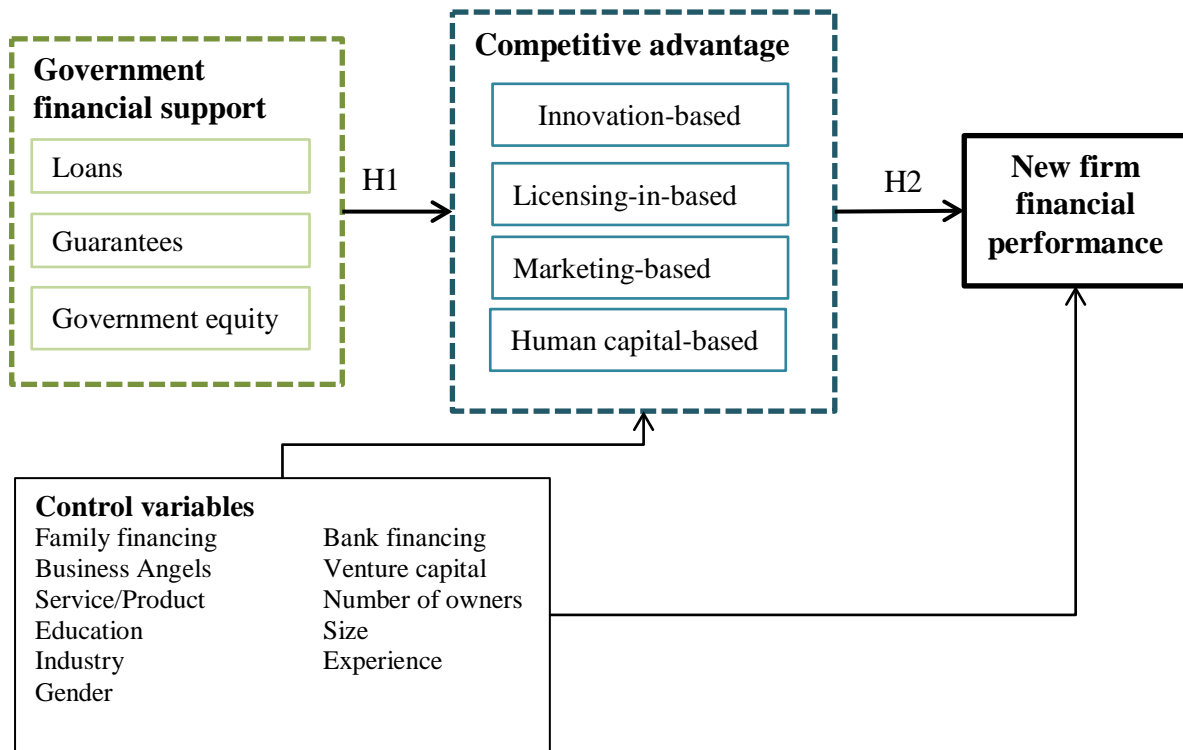
Appendix 1. Descriptive Statistics and Correlation Matrix of Variables in Performance Models (n=2766)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. Performance	1																				
2. Overall Competitive Advantage	.19[a]	1																			
3. Innovation-based Competitive Advantage	.17[a]	.71[a]	1																		
4. Licensing-In -based Competitive Advantage	.06[a]	.34[a]	.19[a]	1																	
5. Marketing-based Competitive Advantage	.14[a]	.90[a]	.55[a]	.12[a]	1																
6. Human Capital-based Competitive Advantage	.16[a]	.57[a]	.22[a]	.09[a]	.37[a]	1															
7. Government Loans	.02	.04[c]	.05[b]	-.01	.04[c]	.03[d]	1														
8. Government Guarantees	.05[c]	.11[a]	.09[a]	.05[b]	.07[a]	.10[a]	.15[a]	1													
9. Government Equity	.02	.04[c]	.05[b]	-.00	.04[d]	.05[b]	-.00	.10[a]	1												
10. Family Financing	.03	.01	-.01	-.02	.01	.02	.06[a]	.01	-.00	1											
11. Bank Financing	.11[a]	.05[c]	.05[b]	-.00	.02	.09[a]	.08[a]	.20[a]	.08[a]	.03	1										
12. Equity of Business Angels	-.02	.05[b]	.02	-.01	.04[c]	.06[a]	-.00	-.01	-.00	.01	.00	1									
13. Equity of Venture Capitalists	.02	.01	-.01	-.01	.01	.01	-.00	-.00	-.00	-.00	-.01	-.00	1								
14. Service	-.03[d]	-.12[a]	-.19[a]	.01	-.13[a]	.04[d]	-.03	-.03	.01	-.04[c]	-.01	.02	.01	1							
15. Product	.08[a]	.25[a]	.26[a]	.05[b]	.24[a]	.06[a]	.02	.07[a]	.02	.05[c]	.03	.04[c]	.03	-.41[a]	1						
16. Owners	.13[a]	.13[a]	.17[a]	.08[a]	.08[a]	.05[a]	.02	.09[a]	.01	-.04[c]	.12[a]	.00	.07[a]	-.06[b]	.07[a]	1					
17. Education	.00	.13[a]	.10[a]	.04[c]	.10[a]	.07[a]	.02	-.02	-.01	.01	-.08[a]	-.01	.01	.03[d]	-.13[a]	-.01	1				
18. Total Assets	.54[a]	.27[a]	.22[a]	.05[b]	.21[a]	.21[a]	.03[d]	.11[a]	.02	.04[c]	.18[a]	.02	.00	-.09[a]	.20[a]	.21[a]	-.06[b]	1			
19. Industry	.03	.18[a]	.20[a]	.11[a]	.15[a]	.05[c]	.02	.04[c]	-.01	-.02	-.01	-.01	-.01	.01	.03	.08[a]	.12[a]	-.01	1		
20. Experience	.03[d]	.00	.03	.01	-.01	.01	-.03	-.02	.02	-.01	.02	.01	.00	.08[a]	-.05[b]	.04[c]	.01	.05[c]	.07[a]	1	
21. Gender	.09[a]	.05[b]	.09[a]	.05[b]	.03	-.02	.01	-.01	.01	-.01	.04[c]	-.04[d]	.01	-.07[a]	.07[a]	-.00	-.03	.10[a]	.09[a]	.16[a]	1
Mean	5.7	0.53	0.57	0.66	0.53	0.54	0.02	0.03	0.0004	0.07	0.5	0.02	0.004	0.87	0.45	1.55	6.78	6.75	0.15	15	0.8
S.D.	2.28	0.2	0.13	0.03	0.17	0.11	0.38	0.18	0.02	0.68	1.85	0.38	0.14	0.33	0.5	0.9	2.05	2.06	0.36	10.52	0.4
Min	0	0.36	0.51	0.66	0.4	0.47	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
Max	9	1	1	0.92	0.86	0.83	8	1	1	9	9	8	6	1	1	15	10	9	1	40	1

[a]p<0.001, [b]p<.01, [c]p<.05, [d]p<.10

Notes: Since some of the variables under study have an ordinal scale of measurement, we also run Spearman rank correlations. Pearson and Spearman correlations results are very similar. Only Pearson correlations are shown in the table. Spearman rank correlations are available upon request. Descriptive statistics and correlations for variables included in the competitive advantage models (n = 4488) are very similar to those included in the performance models. Details of these statistics are available upon request.